ORDER NO. HAD8705155C8

Service Manual

Tuner

QUARTZ SYNTHESIZER
LW/MW/FM STEREO TUNER

ST-X830L

Color

(K).....Black Type

Area

color	area
(K)	(EX).....Continental Europe.
(K)	(EK).....United Kingdom.
(K)	(EB).....Belgium.
(K)	(EH).....Holland.
(K)	(EF).....France.
(K)	(EW).....Switzerland.
(K)	(XA).....Asia,Oceania,Latin America,Middle Near East and Africa.

SPECIFICATIONS
(DIN 45 500)

■ FM TUNER SECTION

Frequency range	87.50~108.00MHz (50kHz-steps)
Sensitivity	1.5μV (IHF, usable)
S/N 30dB	1.3μV (75Ω)
S/N 26dB	1.2μV (75Ω)
S/N 20dB	0.9μV (75Ω)
IHF 46dB stereo quieting sensitivity	28μV/75Ω
Total harmonic distortion	
MONO	0.15%
STEREO	0.3%
S/N	
MONO	70dB (78dB, IHF)
STEREO	65dB (70dB, IHF)
Frequency response	20Hz~15kHz, +0.5dB~−1.5dB
Alternate channel selectivity	
±400kHz	65dB
Capture ratio	1.0dB
Image rejection at 98MHz	40dB
IF rejection at 98MHz	70dB
Spurious response rejection at 98MHz	70dB
AM suppression	55dB
Stereo separation	
1kHz	40dB
10kHz	30dB
Carrier leak	
19kHz	−30dB (−35dB, IHF)
38kHz	−45dB (−50dB, IHF)
Channel balance (250Hz~6,300Hz)	±1.5dB
Limiting point	1.2μV
Bandwidth	
IF amplifier	180kHz
FM demodulator	1000kHz
Antenna terminals	75Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	
(For Europe)	
MW	522kHz~1611kHz (9kHz-steps)
	530kHz~1620kHz (10kHz-steps)
LW	155kHz~353kHz (9kHz-steps)
	153kHz~351kHz (−2kHz shift)
(For others)	
MW	531kHz~1602kHz (9kHz-steps)
	530kHz~1600kHz (10kHz-steps)
LW	155kHz~281kHz (9kHz-steps)
	153kHz~279kHz (−2kHz shift)

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Sensitivity (S/N 20dB)	
MW	20μV, 300μV/m
LW	50μV
Selectivity (±9kHz)	
MW (at 999kHz)	55dB
LW (at 254kHz)	55dB
Image rejection	
MW (at 999kHz)	40dB
LW (at 254kHz)	40dB
IF rejection	
MW (at 999kHz)	60dB
LW (at 254kHz)	60dB

■ GENERAL

Output voltage	0.3V (0.6V IHF)
Power consumption	9W
Power supply	
For United Kingdom	AC 50Hz/60Hz, 240V
For continental Europe	AC 50Hz/60Hz, 220V
For others	AC 50Hz/60Hz, 110V/127V/220V/240V
Dimensions (W × H × D)	360 × 64.5 × 288mm (14-3/16″ × 2-17/32″ × 11-11/32″)
Weight	2.3kg (5lb.)

Notes:

1. Specifications are subject to change without notice. Weight and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system)

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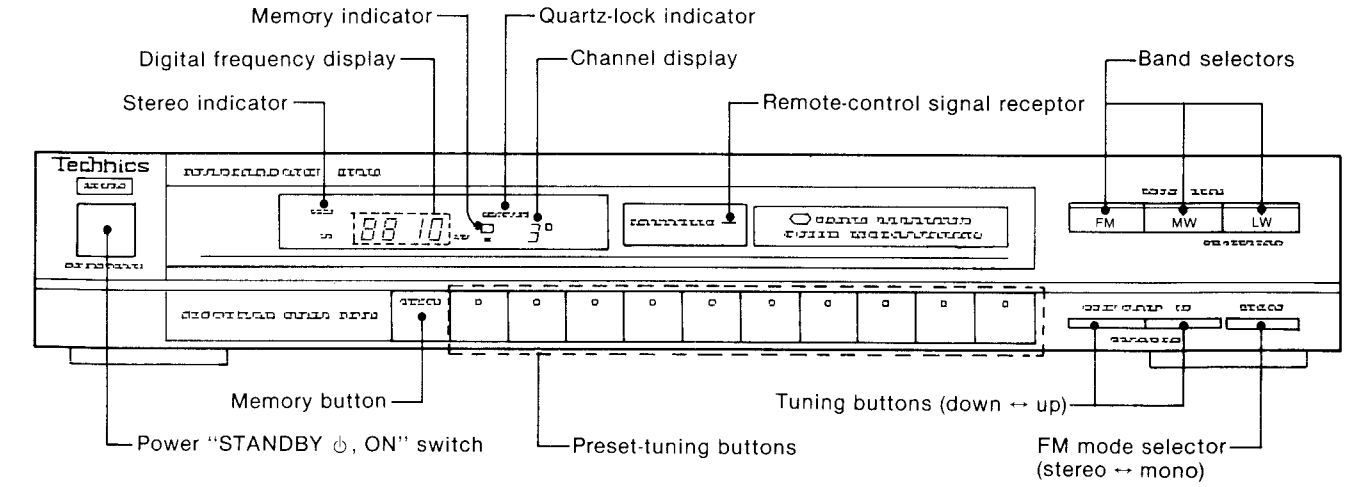
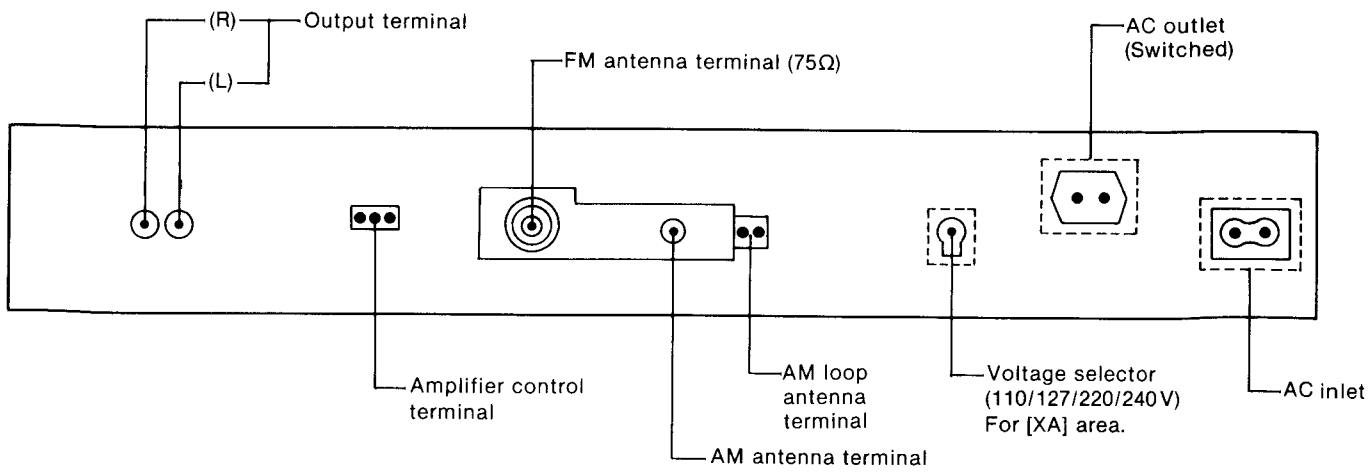
■ LOCATION OF CONTROLS

• Front panel



• Rear panel



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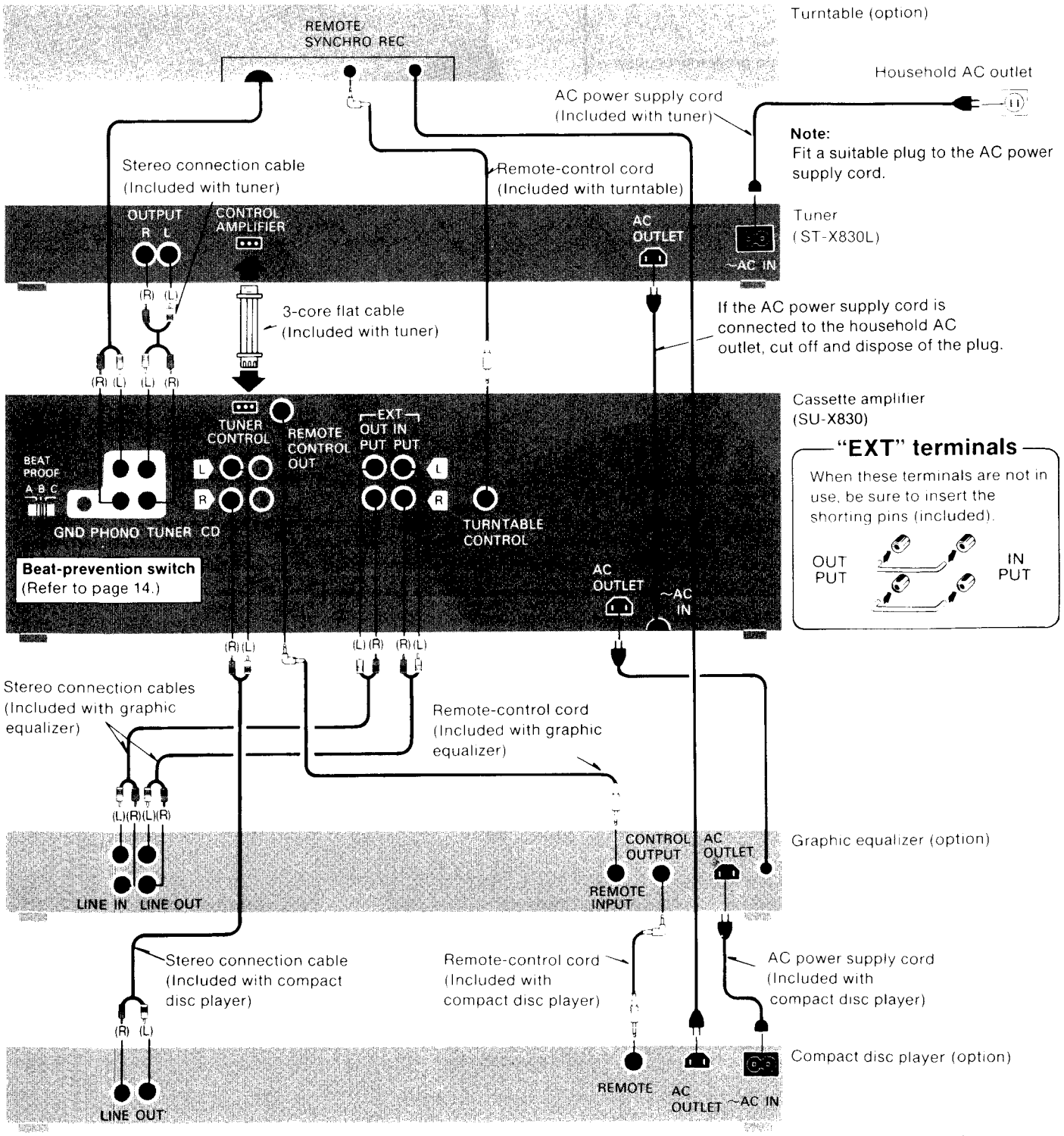
■ CONNECTIONS

Stereo system components and their connections

- For a turntable with a ground terminal, be sure to connect the ground wire to the "GND" terminal of the cassette amplifier. (Refer to the operating instructions of the turntable.)
- Do not connect video-related equipment (such as a TV, etc.) to the AC outlets of these components. (These outlets are especially for audio equipment.) Also do not exceed the indicated power ratings when connecting to these outlets.
  "SWITCHED" outlets (For tuner, cassette amplifier, compact disc player): Power is controlled by the power switch of each unit.
  "UNSWITCHED" outlet (For graphic equalizer): Power is always available, regardless of power switch setting.
- If the graphic equalizer is not used in combination with these components, connect the AC power supply cord of the compact disc player to the AC outlet of the cassette amplifier and connect the remote-control cord of the compact disc player to the "REMOTE CONTROL" terminal ("OUT") of the cassette amplifier.



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■ REMOTE CONTROL TRANSMITTER (EUR64199)

Remote-control transmitter

For remote-control operation, be sure to connect the remote-control cords and/or flat cables, etc. included with each component correctly.

Compact disc player controls

►PLAY/❚❚PAUSE — Press to start disc play. (When pressed during disc play, the play will stop temporarily.)

Note: If the compact disc player has the "PLAY" button and the "PAUSE" button separately, the "PAUSE" function is not operable.

■STOP — Press to stop disc play. (When pressed during programmed play, the programmed settings will be cancelled.)

▪SKIP/▬SEARCH I◄ — Press to select the desired track. (I◄: for backward ►I: for forward)

▪SKIP/▬SEARCH ►I

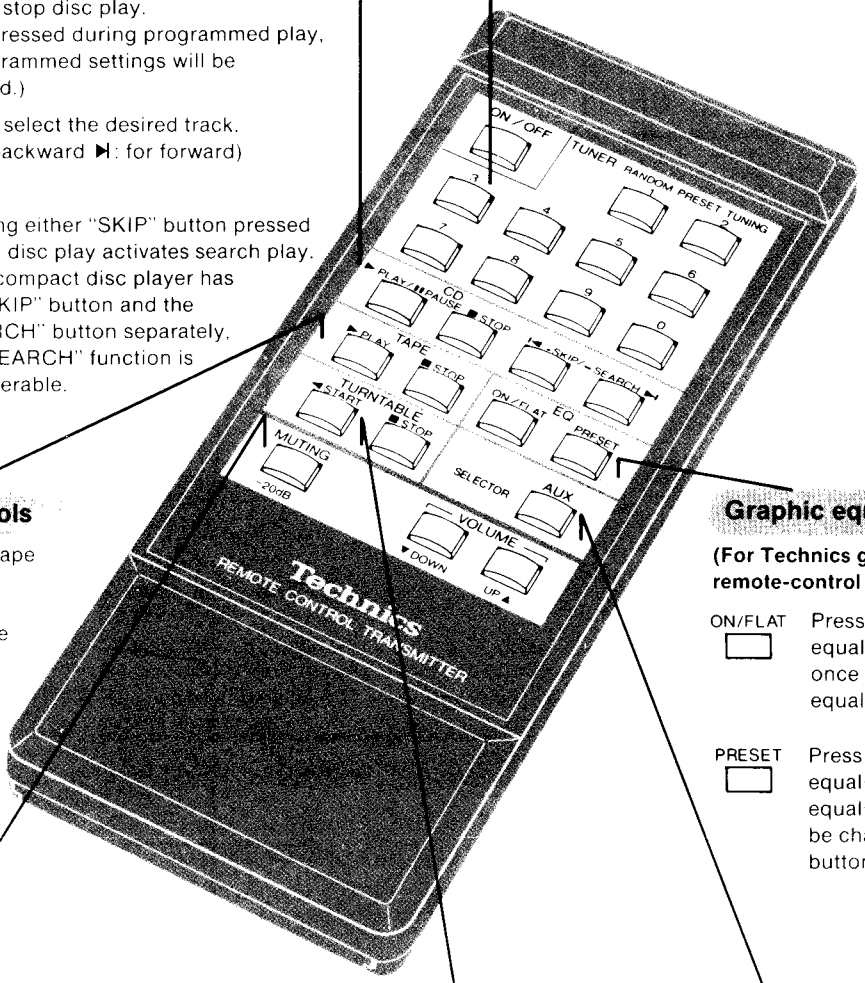
Notes:

- Keeping either "SKIP" button pressed during disc play activates search play.
- If the compact disc player has the "SKIP" button and the "SEARCH" button separately, the "SEARCH" function is not operable.

Tuner controls

1 ~ 0 — Press to select a preset "channel".

ON/OFF — Press to switch the tuner ON and OFF when the power "STANDBY ⏻, ON" switch of the tuner is set to the "ON" position.



Cassette deck controls

►PLAY — Press to begin tape playback.

■STOP — Press to stop the tape.

For "DECK A" only

Graphic equalizer controls

(For Technics graphic equalizer with the remote-control terminal only.)

ON/FLAT — Press to switch ON the equalizer correction. (Press once again to switch OFF the equalizer correction.)

PRESET — Press to retrieve the memorized equalization data. The equalization memory preset will be changed each time the button is pressed.

Amplifier controls

MUTING — Press this button to temporarily reduce the volume level. The volume level is attenuated by 20 dB. (approx. 1/10)

VOLUME — Adjust the volume level. (The volume level is indicated by the volume level indicator on the amplifier.)

Turntable controls

(For Technics turntables with the remote-control terminal only.)

◄START — Press to start disc play.

■STOP — Press to stop disc play.

Aux input selector

AUX — Press this button to listen to equipment connected to the "AUX" terminals.

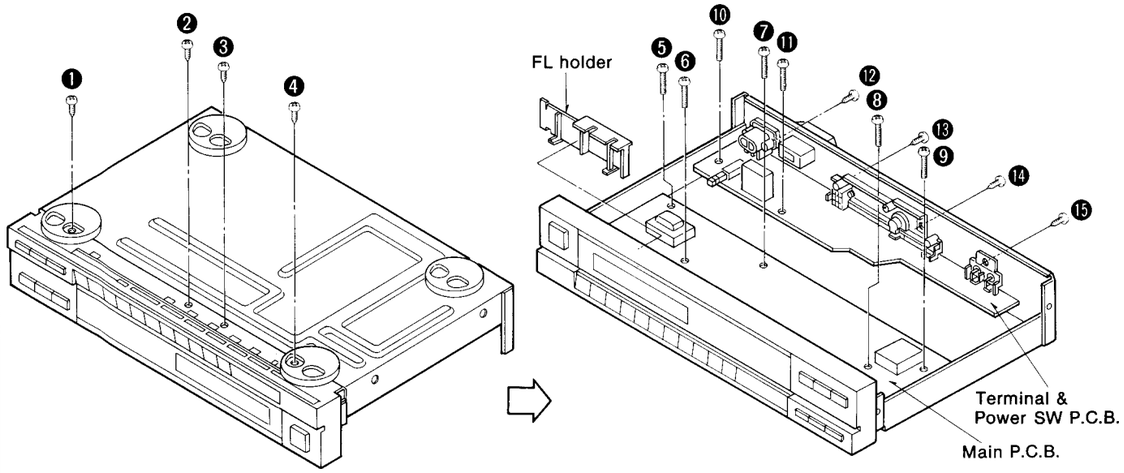
D

■ DISASSEMBLY INSTRUCTIONS

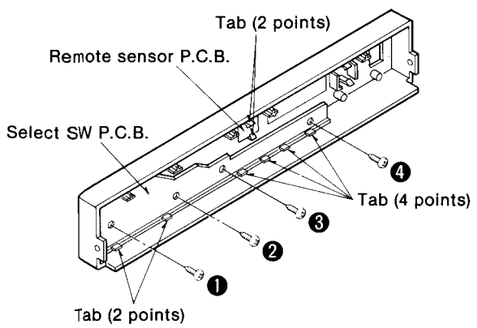
Ref. No. 1	How to remove the cabinet	Ref. No. 2	How to remove the main P.C.B. and terminal & power SW P.C.B.
Procedure 1	• Remove the 4 screws.	Procedure 1 → 2	

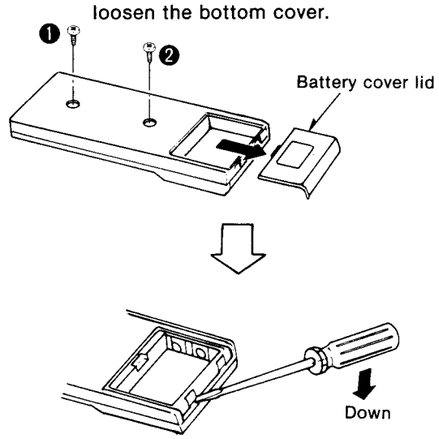
(1) How to remove the main P.C.B.
- Remove the 4 screws (❶~❹).
- Remove the FL holder.
- Remove the front panel.
- Remove the 5 screws (❺~❾).

(2) How to remove the jack P.C.B.
- Remove the 6 screws (❿~⓯).

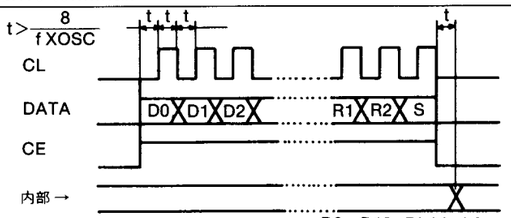


Ref. No. 3	How to remove the select SW P.C.B. and remote sensor P.C.B.	Ref. No. 4	How to remove the remote control transmitter.
Procedure 1 → 3	(1) How to remove the select SW P.C.B. • Remove the 4 screws (❶~❹). • Remove the 6 tabs. (2) How to remove the remote sensor P.C.B. • Remove the 2 tabs.	Procedure 4	• Remove the 2 screws (❶, ❷). • Remove the Battery cover lid. • Insert a screwdriver blade between the upper and lower covers inside the battery compartment and them slowly loosen the bottom cover.





■ FUNCTION OF TERMINAL (IC901: LC6512A3312)

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
1	INPUT	PB3	Computer drive terminal.
2	OUTPUT	DATA	Data output $t > \frac{8}{f_{XOSC}}$  f XOSC: Crystal OSC D0~D13: Divided frequency data R0~R2: Reference frequency data
3		CL	
4		CE	
5	—	PC3	Not used in this unit.
6	—	NC	Not used in this unit.
7	OUTPUT	PD0	Auto/mono changeover terminal. (auto → 0V, mono → 5V)
8	OUTPUT	PD1	Computer drive terminal.
9	—	PD2	Not used in this unit.
10		PD3	
11		PE0	
12 ~ 14 • 22 ~ 25	OUTPUT	PE1 ~ PE3 • PF0 ~ PF3	Digital signal terminal for display. Terminal for key return signal to external key matrix.
15	INPUT	$\overline{RES}$	Reset terminal.
16	—	TEST	Ground terminal.
17		V_{SS}	
18	—	NC	Not used in this unit.
19			
20	INPUT	OSC1	Connecting terminal for crystal oscillator.
21	OUTPUT	OSC2	
26 ~ 29 • 31 ~ 34	OUTPUT	PG0 ~ PG3 • PH0 ~ PH3	Segment signal terminal for display.
30	—	NC	Not used in this unit.
35	OUTPUT	P10	Control signal terminal for relay (RLY701).
36	OUTPUT	P11	Muting signal terminal. (Muting → High level)
37	INPUT	$\overline{HOLD}$	Terminal for power failure detection.
38	INPUT	$\overline{INT}$	Terminal for remote control cord.
39	INPUT	V_{DD}	Power supply terminal of device. Voltage of 5V is supplied during operation of device.
40	INPUT	PA0 ~ PA3	Terminal for key return signal to external key matrix. [KEY MATRIX]
41			
44			
45			
42 • 43	—	NC	Not used in this unit.
46	INPUT	PB0 ~ PB2	Stereo signal terminal.
47			SD signal terminal.
48			Tuner select terminal. (Ground connection)

Pin No.	45	44	41	40
14	CH4	CH3	CH2	CH1
22	CH8	CH7	CH6	CH5
23	—	—	CH0	CH9
24	—	LW	MW	FM
25	MODE	MEMORY	UP	DOWN

D

■ MEASUREMENTS AND ADJUSTMENTS

■ LW/MW/FM

Control positions and equipment used

- AM and FM signal generator (AM and FM-SG)
- Stereo modulator
- Distortion analyser
- Oscilloscope
- Frequency counter
- Choke coil (100μH)
- Resistor(100kΩ)
- Ceramic capacitor(200pF)
- AC and DC electronic voltmeter(EVM)

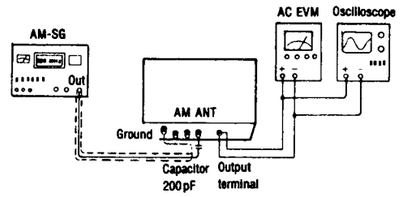
Note: For **T201** (MW-IFT), **L204** (MW OSC coil) and **L205** (LW ANT coil), they are supplied as adjusted parts. So, do not turn the cores of the parts.

MW-RF ADJUSTMENT

1.Test equipment connection is shown in figure.
2.Set the unit to **"MW"** mode.
3.Set the radio and signal generator to **612kHz**.
4.Adjust **L203** for maximum output.
5.Set the radio dial and signal generator to **1503kHz**.
6.Adjust **CT201** for maximum output.
7.Repeat steps 3 ~ 6.

Note: Antenna input level must be as low as possible being free from AGC.

MW SIGNAL GENERATOR CONDITION
Modulation 30%
Modulation frequency 400Hz

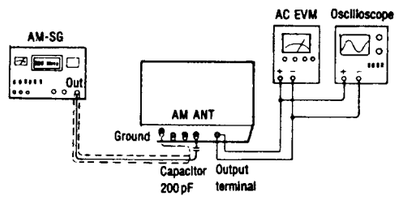


LW-RF ADJUSTMENT

1.Test equipment connection is shown in figure.
2.Set the unit to **"LW"** mode.
3.Set the radio frequency display and signal generator to **155kHz**.
4.Adjust **L206** for maximum output.
5.Set the radio frequency display and signal generator to **353kHz**.
6.Adjust **CT202** for maximum output.
7.Repeat steps 3 ~ 6.

Note: Antenna input level must be as low as possible being free from AGC.

MW SIGNAL GENERATOR CONDITION
Modulation 30%
Modulation frequency 400Hz

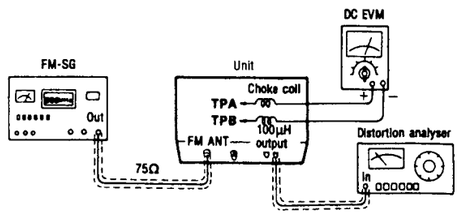


FM MONO DISTORTION ADJUSTMENT

1.Test equipment connection is shown in figure.
2.Set the unit to **"FM"** mode.
3.Set the radio frequency display and signal generator to **100.10MHz**.
4.Adjust the core of **T101** so that the voltage measured in signal mode is **0mV(0±50mV)** in 300mV range.
5.Adjust **T102** so that the distortion factor of L-CH is minimized.
6.Repeat steps 4 and 5.
7.Make sure that the distortion factors of L-CH and R-CH are nearly the same and minimum.

Note: The adjusting screwdriver used should be made of resin.

FM SIGNAL GENERATOR CONDITION
Modulation 100%
Modulation frequency 400Hz
Output level 66dB



TPA=TP101, TPB=TP102

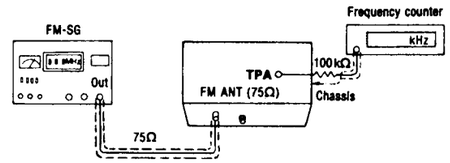
MPX VCO ADJUSTMENT

1.Test equipment connection is shown in figure.
2.Set the unit to **"on/auto"** position.
3.Set the radio dial and signal genarator to **100.10MHz**.
4.Adjust **VR302** for **19kHz±30Hz** on frequency counter reading.

USING ALTERNATE SYSTEM

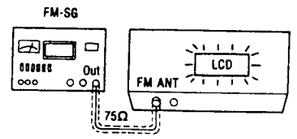
1.Apply stereo signal from generator or receive the stereo broadcast.
2.Adjust **VR302** until stereo indicator lights up. Fix the arm of **VR302** as shown in figure.

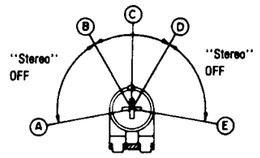
FM SIGNAL GENERATOR CONDITION
Modulation 0%
Modulation frequency 0
Output level.....66dB



TPA=TP301, Frequency counter: 19.000kHz

FM SIGNAL GENERATOR CONDITION
Modulation .....90%(Pilot 10%)
Modulation frequency .....400Hz(Pilot 19kHz)
Output level.....66dB



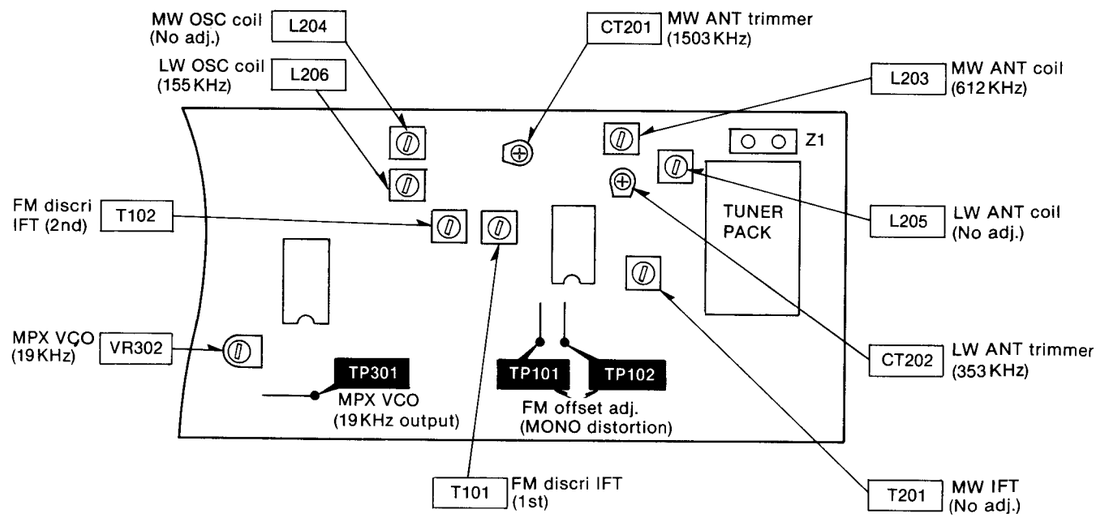


VRA

Ⓐ−Ⓑ,
Ⓓ−Ⓔ..... **"Stereo" OFF position**
Ⓑ−Ⓓ..... **"Stereo" ON position (Indicator lighting)**
Ⓒ..... **Adjust point of pilot circuit**

VRA=VR302

• Adjustment points



■ RESISTORS & CAPACITORS

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area.
Parts without these indications can be used for all areas.

Numbering System of Resistor

Example

ERD	25	F	J	102
Type	Wattage	Shape	Tolerance	Value

ERX	2	AN	J	471
Type	Wattage	Shape	Tolerance	Value 47x10¹ (ohm)

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	330
Type	Voltage	Peculiarity	Value (33x10⁰ microfarad)

Resistor Type	Wattage	Tolerance
ERD : Carbon ERG : Metal Oxide ERX : Metal Film ERQ : Fuse Type Metal ERD□ L : Carbon (chip) ERO□ K : Metal Film (chip) ERC : Solid	10 : 1/8W 12 : 1/2W 25 : 1/4W 1A : 1W 1B : 1/8W S2 : 1/4W S1 : 1/2W 2F : 1/4W 50 : 1/2W 2A : 2W	J : ±5% F : ±1% G : ±2% K : ±10%

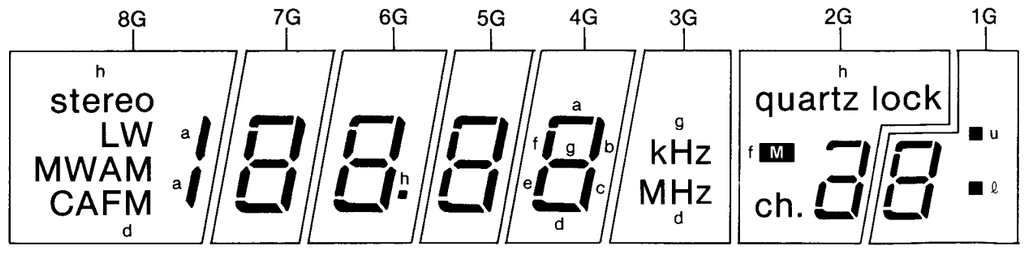
Capacitor Type	Voltage	Tolerance
ECE : Electrolytic ECCD : Ceramic ECKD : Ceramic ECQM : Polyester ECQP : Polyproylene ECG : Ceramic ECEA□□□N: Non Polar Electrolytic QCU□ : Ceramic (Chip Type) ECUX : Ceramic (Chip Type) ECF : Semiconductor EECW : Liquid electrolyte double layer capcitor	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1H : 50V 1V : 35V 50 : 50V 05 : 50V 2H : 500V 2A : 100V 1 : 100V KC: 400V AC KC: 125VAC (UL) 1J : 63V	C : ±0.25pF J : ±5% K : ±10% Z : +80% −20% P : +100% −0% M : ±20% D : ±0.5pF G : ±2%

Ref. No.	Part No.	Part Code
RESISTORS		
R101	ERDS2TJ151	001 152 2426 5
R101 (EK)	ERG1ANJ151	001 151 0033 1
R102	ERDS2TJ122	001 152 2423 8
R104	ERDS2TJ824	001 152 2457 8
R105	ERDS2TJ122	001 152 2423 8
R106	ERDS2TJ824	001 152 2457 8
R107	ERDS2TJ271	001 152 2435 4
R108	ERDS2TJ102	001 152 2346 4
R109	ERDS2TJ471	001 152 2361 5
R110	ERDS2TJ822	001 152 2455 0
R111	ERDS2TJ222	001 152 2353 5
R112	ERDS2TJ224	001 152 2433 6
R113, R114	ERDS2TJ223	001 152 2432 7
R115	ERDS2TJ563	001 152 2446 1
R116	ERDS2TJ471	001 152 2361 5
R117	ERDS2TJ103	001 152 2347 3
R118	ERDS2TJ332	001 152 2357 1
R119	ERDS2TJ822	001 152 2455 0
R120	ERDS2TJ561	001 152 2364 2
R123	ERDS2TJ182	001 152 2352 6
R130	ERDS2TJ563	001 152 2446 1
R131, R201	ERDS2TJ103	001 152 2347 3
R202	ERDS2TJ822	001 152 2455 0
R203	ERDS2TJ102	001 152 2346 4
R204	ERDS2TJ104	001 152 2348 2
R205	ERDS2TJ102	001 152 2346 4
R206	ERDS2TJ182	001 152 2352 6
R207	ERDS2TJ223	001 152 2432 7
R209	ERDS2TJ122	001 152 2423 8
R210	ERDS2TJ473	001 152 2363 3
R211	ERDS2TJ122	001 152 2423 8
R214	ERDS2TJ824	001 152 2457 8
R215	ERDS2TJ102	001 152 2346 4
R301	ERDS2TJ393	001 152 2440 7
R303, R304	ERDS2TJ223	001 152 2432 7
R305, R306	ERDS2TJ223	001 152 2432 7
R307	ERDS2TJ224	001 152 2433 6
R308 (EX, EH, EF) (EB, EW, XA)	ERDS2TJ151	001 152 2426 5
R308 (EK)	ERG1ANJ151	001 151 0033 1
R309	ERDS2TJ153	001 152 2351 7
R310	ERDS2TJ102	001 152 2346 4
R311, R312	ERDS2TJ272	001 152 2354 4
R313, R314	ERDS2TJ562	001 152 2445 2
R315, R316	ERDS2TJ102	001 152 2346 4
R412	ERDS2TJ123	001 152 2424 7
R413	ERDS2TJ562	001 152 2445 2
R414	ERDS2TJ102	001 152 2346 4
R415	ERDS2TJ473	001 152 2363 3
R702	ERDS2TJ102	001 152 2346 4
R703	ERDS2TJ221	001 152 2431 8
R704 (EX, EH, EF) (EB, EW, XA)	ERDS2TJ102	001 152 2346 4
R704	ERDS2TJ272	001 152 2354 4
R706	ERDS2TJ104	001 152 2348 2
R707	ERDS2TJ103	001 152 2347 3
R708	ERDS2TJ473	001 152 2363 3
R710 (EX, EH, EF) (EB, EW, EK) (XA)	ERDS2TJ103	001 152 2347 3
R711 (EX, EH, EF) (EB, EW, EK) (XA)	ERDS2TJ104	001 152 2348 2
R712, R713 ⚠	ERDS2TJ3R9	001 152 2871 8
R714 (EX, EH, EF) (EB, EW, EK) (XA)	ERDS2TJ562	001 152 2445 2
R716, R717	ERDS2TJ101	001 152 2421 0
R718	ERDS2TJ101	001 152 2421 0
R721 (EK)	ERDS2TJ222	001 152 2353 5
R902	ERDS2TJ562	001 152 2445 2
R903	ERDS2TJ103	001 152 2347 3
R904	ERDS2TJ561	001 152 2364 2
R905	ERDS2TJ102	001 152 2346 4
R906	ERDS2TJ153	001 152 2351 7
R907	ERDS2TJ332	001 152 2357 1
R908	ERDS2TJ102	001 152 2346 4
R910	ERDS2TJ101	001 152 2421 0
R911	ERDS2TJ103	001 152 2347 3
R912	ERDS2TJ684	001 152 2451 4
R913, R914	ERDS2TJ103	001 152 2347 3
R915	ERDS2TJ102	001 152 2346 4
R916	ERDS2TJ332	001 152 2357 1
R917	ERDS2TJ103	001 152 2347 3
R918	ERDS2TJ224	001 152 2433 6
R920	ERDS2TJ105	001 152 2422 9
R921	ERDS2TJ562	001 152 2445 2
R922	ERDS2TJ681	001 152 2449 8
R923	ERDS2TJ104	001 152 2348 2
R928	ERDS2TJ102	001 152 2346 4
R929 (EX, EH, EF) (EB, EW, XA)	ERDS2TJ151	001 152 2426 5
R929 (EK)	ERG1ANJ151	001 151 0033 1
R930, R931	ERDS2TJ104	001 152 2348 2
R932, R933	ERDS2TJ104	001 152 2348 2
R940, R941	ERDS2TJ473	001 152 2363 3
R942	ERDS2TJ103	001 152 2347 3
R945	ERDS2TJ474	001 152 2443 4
R946	ERDS2TJ273	001 152 2436 3
R947	ERDS2TJ223	001 152 2432 7
R950, R951	ERDS2TJ683	001 152 2450 5
R952, R953	ERDS2TJ683	001 152 2450 5
R954	ERDS2TJ683	001 152 2450 5
R955, R960	ERDS2TJ103	001 152 2347 3
R961	ERDS2TJ273	001 152 2436 3
R970, R971	ERDS2TJ103	001 152 2347 3
R972	ERDS2TJ103	001 152 2347 3
R974 (EX, EH, EF) (EB, EW, EK) (XA)	ERDS2TJ684	001 152 2451 4
R981 (EX, EH, EF) (EB, EW, EK) (XA)	ERDS2TJ333	001 152 2358 0

Ref. No.	Part No.	Part Code
R982 (EX, EH, EF) (EB, EW, EK) (XA)	ERDS2TJ104	001 152 2348 2
R983 (EX, EH, EF) (EB, EW, EK) (XA)	ERDS2TJ223	001 152 2432 7
R984 (EX, EH, EF) (EB, EW, EK) (XA)	ERDS2TJ681	001 152 2449 8
R986 (EX, EH, EF) (EB, EW, EK) (XA)	ERDS2TJ103	001 152 2347 3
R987 (EX, EH, EF) (EB, EW, EK) (XA)	ERDS2TJ273	001 152 2436 3
R988	ERDS2TJ103	001 152 2347 3
R989, R990	ERDS2TJ104	001 152 2348 2
R992 (EX, EH, EF) (EB, EK, XA)	ERDS2TJ104	001 152 2348 2
R993 (EX, EH, EF) (EB, EW, EK) (XA)	ERDS2TJ103	001 152 2347 3
CAPACITORS		
C1	ECCC1H221K	001 103 0508 7
C2, C3	ECKD1H103PF	001 103 1449 7
C101, C103	ECKD1H103PF	001 103 1449 7
C105	ECCD1H470K	001 103 0627 1
C107	ECEA1HK010	001 120 0341 5
C108	ECEA1HKR47	001 120 0338 0
C109	ECKD1H103PF	001 103 1449 7
C110	ECEA1CKS100	001 120 2600 7
C111	ECCD1H101K	001 103 0341 2
C112, C113	ECKD1H223PF	001 103 1510 9
C114	ECKD1H223PF	001 103 1510 9
C115	ECCD1H100KC	001 103 0321 6
C201	ECFTD473KXL	001 108 0361 3
C202	ECKD1H223PF	001 103 1510 9
C203	ECCD1H180KC	001 103 0448 2
C204	ECQP1471JZ	001 106 1107 1
C206	ECKD1H223PF	001 103 1510 9
C207	ECEA1AU101	001 120 2830 5
C208	ECEA1EK4R7	001 120 0294 5
C209	ECCT1H080DC	001 103 0965 6
C210	ECCD1H470K	001 103 0627 1
C211	ECFTD153KXL	001 108 0356 0
C212	ECQP1391JZ	001 106 1101 7
C214	ECEA1AU101	001 120 2830 5
C220	ECCD1H150KC	001 103 0410 6
C301	ECEA1CKS100	001 120 2600 7
C303	ECEA1CU101	001 120 2926 8
C304	ECEA1CKS100	001 120 2600 7
C306	ECQP1471JZ	001 106 1107 1
C307	ECEA1HK010	001 120 0341 5
C308	ECEA1K3R3B	001 120 6172 0
C309	ECFTD473KXL	001 108 0361 3
C310	ECEA1HKR47	001 120 0338 0
C313, C314	ECEA1K3R3B	001 120 6172 0
C315, C316	ECFTD472KXL	001 108 0746 0
C317, C318	ECFTD332KXL	001 108 0344 4
C320	ECEA1CK220	001 120 0225 8
C402	ECEA1EK4R7	001 120 0294 5
C701, C702	ECEA1CU222	001 120 3074 3
C704	ECKD1H103PF	001 103 1449 7
C705	ECEA1CU221	001 120 2833 2
C707	ECKD1H103PF	001 103 1449 7
C710	ECKD2H102ZF	001 103 7073 5
C711	ECKD1H103PF	001 103 1449 7
C715 ⚠ (EX, EH, EF) (EB, EW, EK)	ECKDKC103PF2	001 103 3734 7
(XA)		
C716	ECEA1VU101	001 120 2929 5
C717	ECKD2H102ZF	001 103 7073 5
C718	ECKD1H103PF	001 103 1449 7
C719	ECEA1VU101	001 120 2929 5
C720	ECKD1H103PF	001 103 1449 7
C725	ECEA1VU100	001 120 3270 1
C726	ECEA1K3R3B	001 120 6172 0
C902	ECKD1H103PF	001 103 1449 7
C903	ECEA25M4R7R	001 120 0838 5
C904	ECKD1H103PF	001 103 1449 7
C905	ECEA1HK010	001 120 0341 5
C906	ECKD1H223PF	001 103 1510 9
C908, C909	ECCD1H150KC	001 103 0410 6
C910	ECKD1H103PF	001 103 1449 7
C911	ECCD1H180KC	001 103 0448 2
C912	ECEA0JU332	001 120 4671 4
C913	ECKD1H103PF	001 103 1449 7
C914	ECEA0JS102	001 120 0152 8
C915	ECEA1HKR22	001 120 0336 2
C916, C917	ECCD1H101K	001 103 0341 2
C918	ECEA1CU330	001 120 2834 1
C920	ECEA0JS221	001 120 2925 9
C921	ECKD1H103PF	001 103 1449 7
C925	ECKD1H223PF	001 103 1510 9
C928	ECFTD472KXL	001 108 0746 0
C981 (EX, EH, EF) (EB, EW, EK) (XA)	EECF5R5U473	001 120 3738 6
C982 (EX, EH, EF) (EB, EW, EK) (XA)	ECKD1H103PF	001 103 1449 7
C984 (XA)	ECEA1CKS100	001 120 2600 7
C985 (EX, EH, EF) (EB, EW, EK) (XA)	ECKD1H103PF	001 103 1449 7

■ DESCRIPTION OF FL PANEL

• GRID ASSIGNMENT



Note: The grid of 3G and 8G are used for external connection.

• PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CONNECTION	F1	F1	NP	h	f	8G	AM	MW	CA	LW	7G	c	a	6G	e	d	g	5G
PIN NO.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
CONNECTION	b	NP	4G	NP	NP	3G	NP	NP	ch	2G	NP	u	1G	ℓ	NP	F2	F2	

D

■ REPLACEMENT PARTS LIST

Notes: ＊Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

＊Bracketed indications in Ref. No. columns specify the area.
Parts without these indications can be used for all areas.

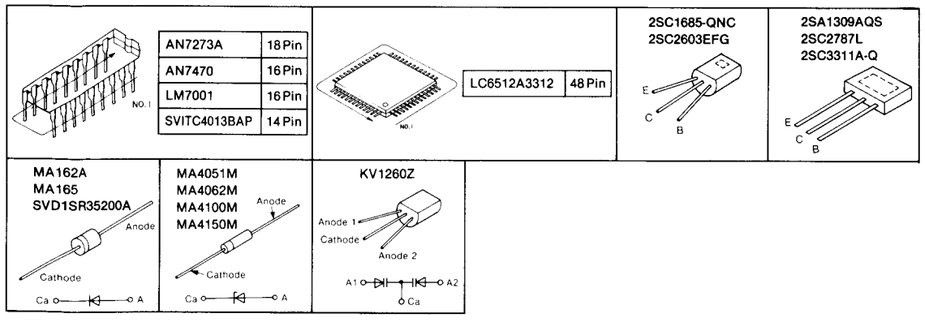
＊[F]: Indicates parts that are supplied by PFS.
(Panasonic France S.A. Longwy division)

Ref. No.	Part No.	Part Code	Description
INTEGRATED CIRCUITS			
IC101	AN7273A	001 060 4214 8	I.C., FM I F DET.&AM CON.
IC301	AN7470	001 060 4215 7	I.C., FM MPX.
IC901	LC6512A3312	001 061 5043 0	I.C., MICROCOMPUTER.
IC902	LM7001	001 061 3158 8	I.C., PLL CONTROL.
IC981	SVITC4013BAP	001 061 5393 1	IC., FAILURE DET.
(EX, EH, EF)			
(EB, EW, EK)			
(XA)			
TRANSISTORS			
Q101, Q102	2SC2787L	001 030 2508 3	TRANSISTOR
Q103, Q104	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q105	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q201	2SA1309AQS	001 030 4846 0	TRANSISTOR
Q202, Q203	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q204	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q402	2SA1309AQS	001 030 4846 0	TRANSISTOR
Q403, Q404	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q701	2SC1685-QNC	001 030 2729 2	TRANSISTOR
Q702	2SC1685-QNC	001 030 2729 2	TRANSISTOR
(EK)			
Q702	2SC3311A-Q	001 030 5279 5	TRANSISTOR
(EX, EH, EF)			
(EB, EW, XA)			
Q703	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q704, Q705	2SA1309AQS	001 030 4846 0	TRANSISTOR
Q706	2SA1309AQS	001 030 4846 0	TRANSISTOR
(EX, EH, EF)			
(EB, EW, EK)			
(XA)			
Q707	2SC3311A-Q	001 030 5279 5	TRANSISTOR
(EX, EH, EF)			
(EB, EW, EK)			
(XA)			
Q708	2SC1685-QNC	001 030 2729 2	TRANSISTOR
Q709	2SC3311A-Q	001 030 5279 5	TRANSISTOR
(EX, EH, EF)			
(EB, EW, EK)			
(XA)			
Q902, Q903	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q904, Q905	2SC2603EFG	001 030 4301 8	TRANSISTOR
Q906, Q907	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q908	2SA1309AQS	001 030 4846 0	TRANSISTOR
Q909	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q910	2SA1309AQS	001 030 4846 0	TRANSISTOR
Q911	2SC3311A-Q	001 030 5279 5	TRANSISTOR
Q912	2SA1309AQS	001 030 4846 0	TRANSISTOR
Q981	2SA1309AQS	001 030 4846 0	TRANSISTOR
(EX, EH, EF)			
(EB, EW, EK)			
(XA)			
Q982	2SA1309AQS	001 030 4846 0	TRANSISTOR
DIODES			
D1	GP1U509M	001 033 0238 9	DIODE , REMOTE SENSOR
D201	KV1260Z	001 032 7237 7	DIODE
D301, D302	MA165	001 032 0494 0	DIODE
D405, D406	MA165	001 032 0494 0	DIODE
D407	MA165	001 032 0494 0	DIODE
D701, D702 ⚠	SVD1SR35200A	001 032 3951 4	RECTIFIER
D703	MA4150M	001 032 4961 8	DIODE
D704	MA4062-M	001 032 7211 7	DIODE
D705	MA165	001 032 0494 0	DIODE
(EX, EH, EF)			
(EB, EW, EK)			
(XA)			
D710, D711	MA165	001 032 0494 0	DIODE
D714	MA4051-M	001 032 4947 6	DIODE
D901	MA165	001 032 0494 0	DIODE
D906, D907	MA162A	001 032 0493 1	DIODE
D909, D910	MA165	001 032 0494 0	DIODE
D911, D912	MA165	001 032 0494 0	DIODE
D913, D914	MA165	001 032 0494 0	DIODE
D915, D916	MA165	001 032 0494 0	DIODE
D917, D918	MA165	001 032 0494 0	DIODE
D919, D920	MA165	001 032 0494 0	DIODE
D927, D931	MA165	001 032 0494 0	DIODE
D932	MA165	001 032 0494 0	DIODE
D933	MA165	001 032 0494 0	DIODE
(XA)			
D981, D982	MA165	001 032 0494 0	DIODE
(EX, EH, EF)			
(EB, EW, EK)			
(XA)			
D983, D984	MA165	001 032 0494 0	DIODE
(EX, EH, EF)			
(EB, EW, EK)			
(XA)			
D988	MA4100M	001 032 4722 1	DIODE
(EX, EH, EF)			
(EB, EW, EK)			
(XA)			
D989	MA165	001 032 0494 0	DIODE
VARIABLE RESISTORS			
VR302	QVNB3A00B472	001 180 1655 0	VARIABLE RESISTOR
VARIABLE CAPACITORS			
CT201, CT202	ECRHA010A41	001 142 0565 9	TRIMMER
CT202	ECRHA020D41	001 142 0598 0	POLYETHYLENE CAPACITOR
COILS AND TRANSFORMERS			
L1, L201	ELEPK1R0MA	001 211 0854 9	COIL
L202	ELEPK1R0MA	001 211 0854 9	COIL
L203	SLA2B3-P	001 211 2249 6	ANTENNA COIL
L204	SL02B9R-P	001 211 2783 9	OSCILLATOR COIL
L205	SLA1B7R-P	001 211 2779 5	ANTENNA COIL
L206	SL01B5-P	001 211 2782 0	OSCILLATOR COIL
L301, L302	SLM1B9-P	001 211 3493 2	MPX COIL
L902	ELEPK101KA	001 211 0855 8	CHOKE COIL
T101	SLI4B511-Z	001 211 0655 4	I.F. TRANSFORMER
T102	SLI4B513-Z	001 211 0656 3	I.F. TRANSFORMER
T201	SLI2B101-M	001 211 0654 5	I.F.TRANSFORMER
T701 ⚠	SLT5K244-S	001 202 9017 3	POWER TRANSFORMER
(EK)			
T701 ⚠	SLT5K245-S	001 202 9061 9	POWER TRANSFORMER
(XA)			
T701 ⚠	SLT5K246-S	001 202 9032 4	POWER TRANSFORMER
(EX, EH, EF)			
(EB, EW)			
COMPONENT COMBINATIONS			
Z301, Z302	EXRP102K473T	001 230 1131 6	C-R COMBINATION
Z901	EXBF8E104J	001 230 2844 6	CNMBINATION COM
Z902	EXBF9E104J	001 230 2177 8	CNMBINATION COM
Z903	EXFP8331MW	001 230 1628 6	C-R COMBINATION
FILTERS			
CF101, CF102	SVFE107MS8-Q	001 241 0820 1	CERAMIC FILTER
CF201	SVFSFZ450F7L	001 241 0429 4	CERAMIC FILTER
OSCILLATORS			
X901	SVQ49U722-S	001 250 2178 5	CRYSTAL OSCILLATOR
X902	SVFCSB960D	001 241 1369 5	CRYSTAL OSCILLATOR
DISPLAYS			
FL	SAD8MT10ZYK	001 001 0518 2	DISPLAY TUBE
FRONT PACKS			
FE1	SNVFE202E02	003 462 2807 3	TUNER , FRONT END
FUSES			
F1 ⚠	XBA2C04TB0	002 380 1459 0	FUSE , T0.4A250V, T0.4A250V
(EK)			
F1 ⚠	XBA2C04TR0	002 380 0394 4	FUSE, T0.4A250V
(EX, EH, EF)			
(EB, EW, XA)			
F2 ⚠	XBAS2A2001	002 380 0410 1	FUSE, T2A250V
(EW)			
SWITCHES			
S701	SSH1196-1	003 435 6383 3	PUSH SWITCH
S702 ⚠	SSR187-1	003 430 2201 5	SW, VOLTAGE SELECT
(XA)			
S901, S902	EVQQAC05G	003 439 2072 1	SW, CH1/CH2
S903, S904	EVQQAC05G	003 439 2072 1	SW, CH3/CH4
S905, S906	EVQQAC05G	003 439 2072 1	SW, CH5/CH6
S907, S908	EVQQAC05G	003 439 2072 1	SW, CH7/CH8
S909, S910	EVQQAC05G	003 439 2072 1	SW, CH9/CH10
S911, S912	EVQQAC05G	003 439 2072 1	SW, FM/MW
S913, S914	EVQQAC05G	003 439 2072 1	SW, LW/MEMORY
S915, S916	EVQQAC05G	003 439 2072 1	SW, MODE/DOWN
S917	EVQQAC05G	003 439 2072 1	SW, UP
RELAYS			
RY701	SSY123	003 450 2725 0	RELAY

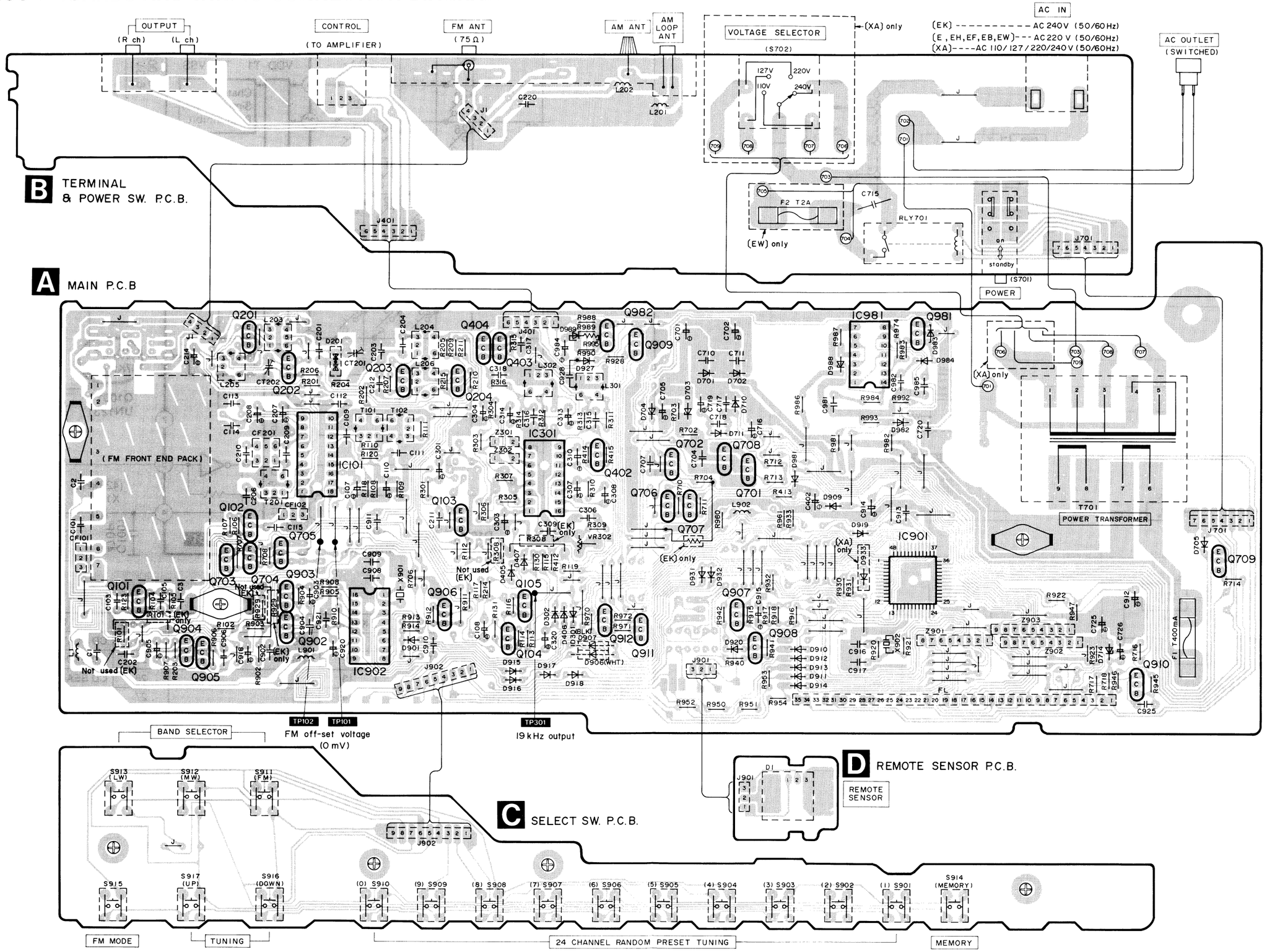
Ref. No.	Part No.	Part Code	Description
CABINET AND CHASSIS			
1	SBC666-1	016 702 6076 0	BUTTON
2	SGYTX830L-KE	016 840 8038 7	FRONT PANEL
2-1	SDU330B	016 842 1706 2	FILTER
3	SGX7921A	016 846 3833 8	ORNAMENT
4	SBC874-3A	016 702 7069 5	BUTTON
5	SBC874-1E	016 702 7070 2	BUTTON
6	SBC930F	016 702 7066 8	BUTTON
7	SBC931	016 702 6961 0	BUTTON
8	SHR9832	016 652 0864 1	FL FOLDER, FL HOLDER
9	SUB267	016 712 0362 5	ROD
10	SKC2060K96	016 800 3042 5	CABINET
11	SKU11651-1	016 802 2194 4	BOTTOM BOARD
12	SKL307	016 828 0325 7	FOOT
13	SHE181	016 918 0332 7	SPACER
14 ⚠	SJS9236	003 403 4660 7	SOCKET
(EX, EH, EF)			
(EB, EW, EK)			
(XA)			
15	SJF8302N	003 410 7910 5	TERMINAL BOARD
(EX, EH, EF)			
(EB, EW, EK)			
15	SJF8401N	003 410 7281 1	TERMINAL BOARD
(XA)			
16	SJS306	003 403 4936 8	CONNECTOR
17	SJFD4	003 410 7707 6	OUTPUT TERMINAL
18	SGPTX830L-KF		REAR PANEL [F]
[EF]			
18	SGP7041-1B	016 840 8037 8	REAR PANEL
(EK)			
18	SGP7041-2C	016 840 8036 9	REAR PANEL
(XA)			
18	SGP7041D	016 840 8035 0	REAR PANEL
(EX, EH, EB)			
(EW)			
19 ⚠	SJS9225	003 400 3946 5	AC OUTLET
(EX, EH, EF)			
(EB, EW, XA)			
20 ⚠	SJS9332B	003 403 7377 5	AC.OUTLET
(EK)			
21	SJS9332A	003 403 7376 6	AC.OUTLET COVER
(EK)			
22	SHR301	016 645 0044 0	CLAMPER
(EK)			
23	SJT347	003 410 1830 8	FUSE HOLDER
24	SHG6385-2	016 653 1202 4	RUBBER SPACER
25	XTB3+8JFZ	005 501 0138 3	SCREW
26	XTB3+8G	005 501 2607 7	SCREW
27	SNE2129-1	005 500 7938 6	SCREW
28	XTBS3+20F1	005 501 2522 1	SCREW
29	XTB3+20J	005 501 3410 4	SCREW
30	XTB3+8JFZ	005 501 0138 3	SCREW
31	XWG3	005 513 1488 4	WASHER
32	SJT30340LX-V	003 410 6075 9	CONNECTOR(3-P)
33	SJT30940LX-V	003 410 6150 5	LUG TERMINAL

Ref. No.	Part No.	Part Code	Description
PACKINGS			
P1	SPG6075	016 971 5150 0	CARTON BOX
(EX, EH, EB)			
(EW, EK, XA)			
P1 [EF]	SPG6117		CARTON BOX [F]
P2	SPS4916	016 977 3237 2	PAD
P3	SPS4917	016 977 3236 3	PAD
P4	SPS4988-1	016 977 3342 2	PAD, PAD
ACCESSORIES			
A1	SPB1152T	016 918 0624 8	ANTTENA
A2	SSA269	002 390 0864 9	COAD
(XA)			
A2	SSA270	002 390 1539 5	ANTENNA
(EX, EH, EF)			
(EB, EW, EK)			
A3	SJP9009	003 492 5594 7	PLUG
(EK)			
A4	SPP740	016 978 0437 3	PROTECTION COVER
A5 ⚠	SFDAC05E03	003 490 4809 5	POWER CORD
(EX, EH, EF)			
(EB, EW)			
A5 ⚠	SFDAC05G02	003 490 2613 3	POWER CORD
(EK)			
A5 ⚠	SJA169-1	003 490 4122 9	POWER CORD
(XA)			
A6 ⚠	SJP9215	003 402 1437 9	AC PLUG ADAPTOR
(XA)			
A7	UM-3NE-2P	016 955 0025 6	PRIMARY BATTERY
A8	SJPK2203-1	003 492 5777 2	CORD
A9	SWKTX880EX2	016 934 0179 6	CONNECTOR, 3P CABLE

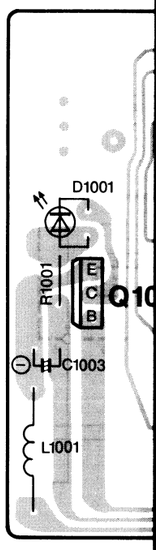
■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



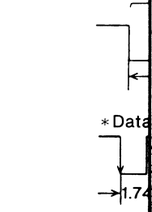
■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM



• Circuit Boa

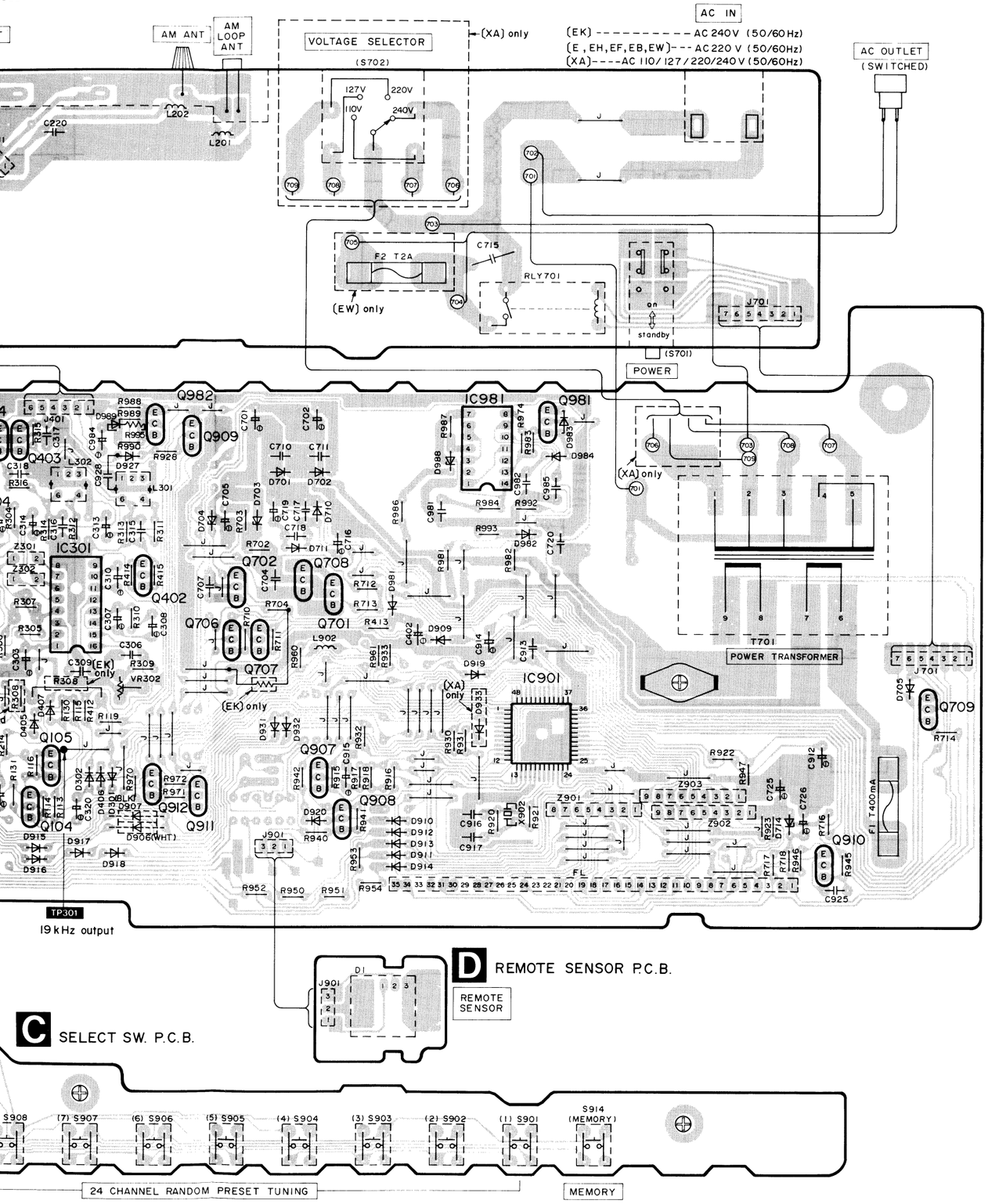


• Key Numb

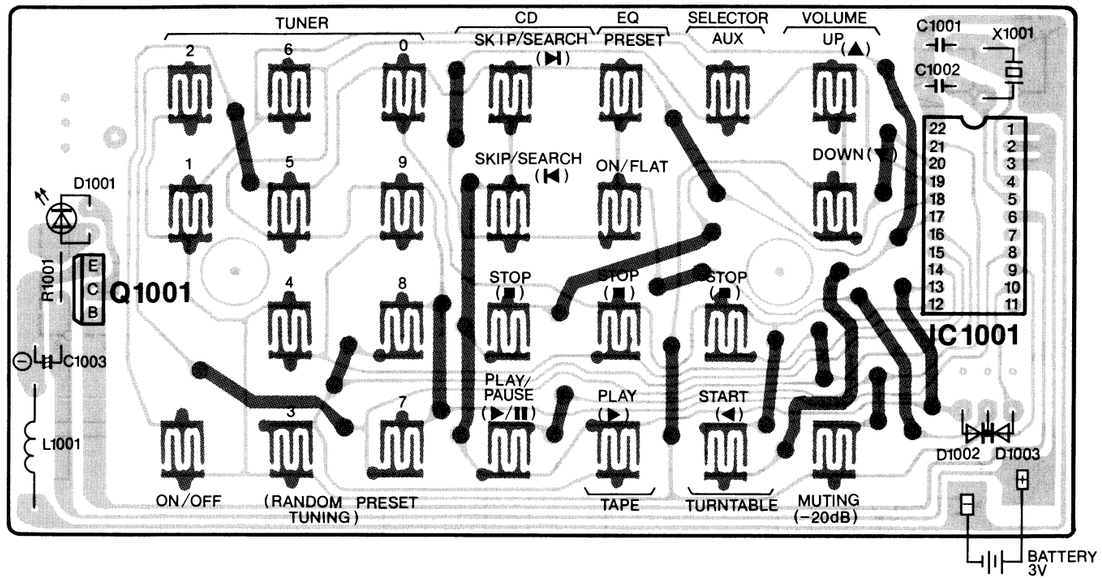


Key No.	
0	MU
1	VO
2	VO
3	PO
4	CH
5	CH
6	CH
7	CH
10	SE
11	CH
12	CH
13	CH
14	CH

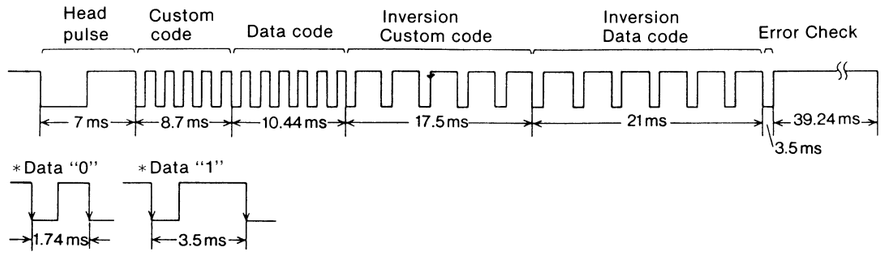
M



• Circuit Board of Remote Control Transmitter

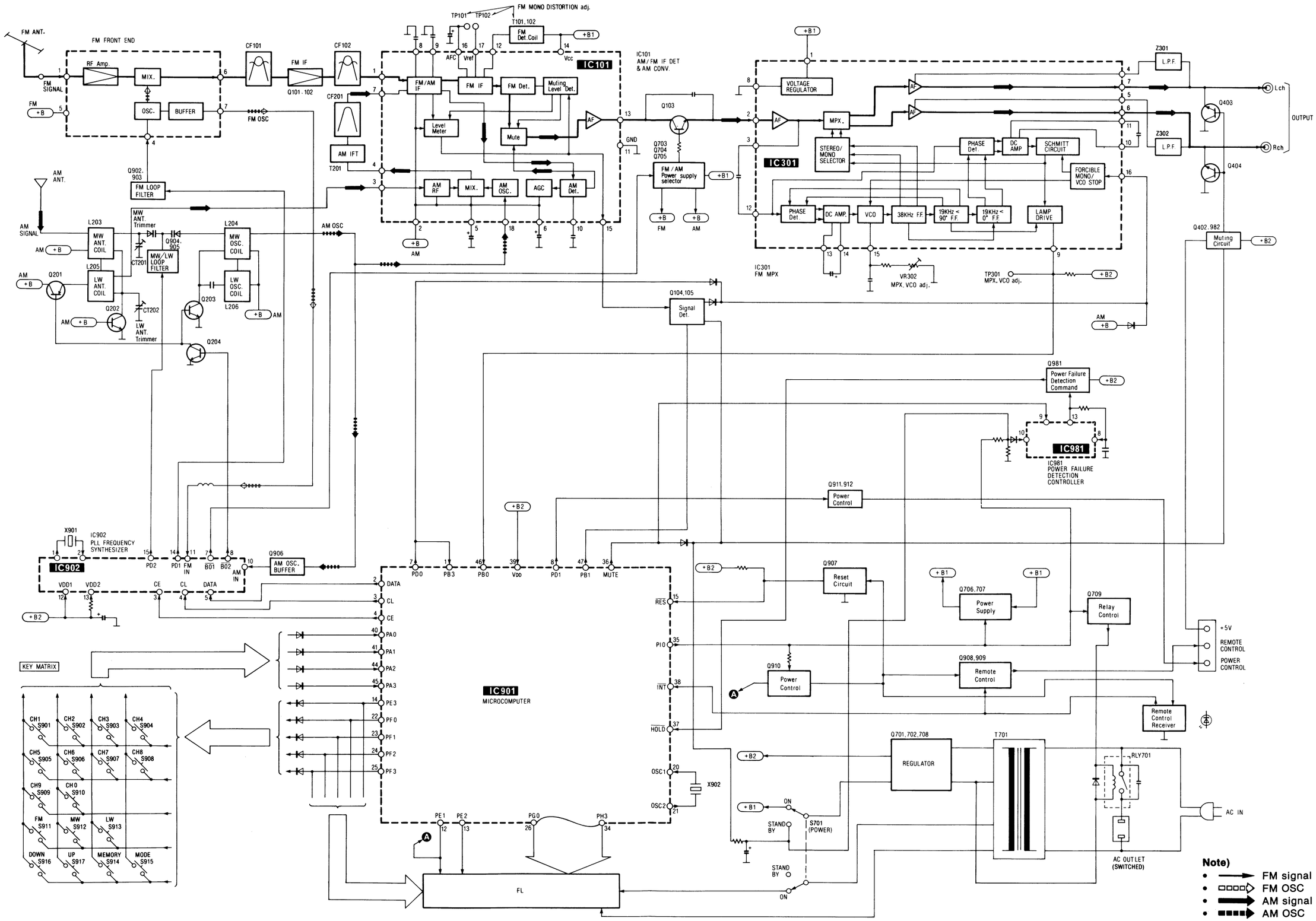


• Key Number Description and Data Code of Remote Control Transmitter



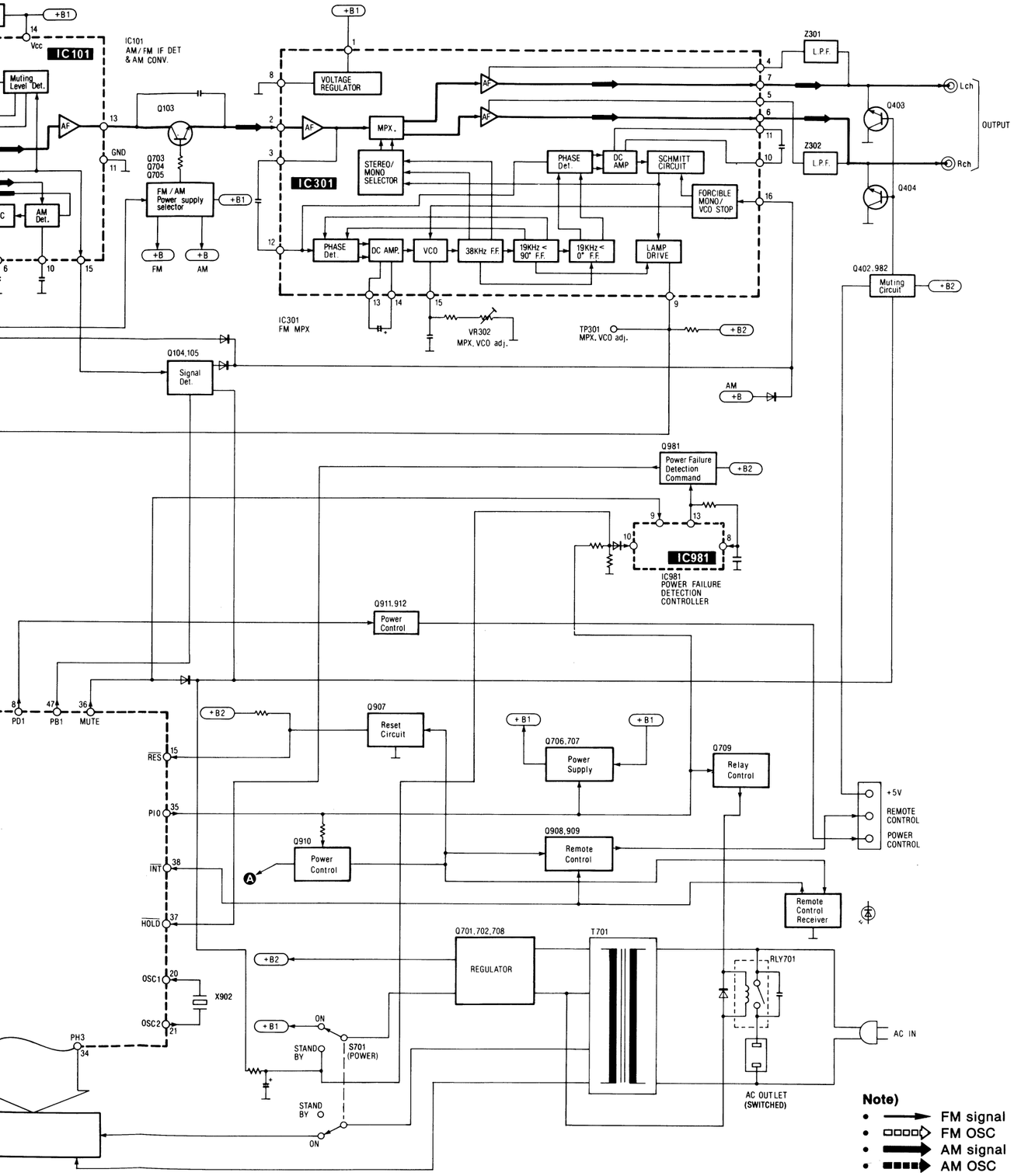
Key No.	Function	Custom code	Data code	Key No.	Function	Custom code	Data code
0	MUTING (−20dB)	01001	100111	15	CH9	01001	011000
1	VOLUME DOWN ▼	01001	100101	19	CH0	01001	011001
2	VOLUME UP ▲	01001	100100	20	TURN TABLE START ▶	01001	001100
3	POWER ON/OFF	01001	100000	21	TURN TABLE STOP ■	01001	001101
4	CH1	01001	010000	23	TAPE STOP ■	01001	000000
5	CH2	01001	010001	24	CD PLAY/PAUSE ▶/❚❚	01100	001010
6	CH3	01001	010010	25	CD STOP ■	01100	000000
7	CH4	01001	010011	26	CD SEARCH/SKIP ▶▶	01100	000010
10	SELECTOR AUX	01001	110100	27	CD SEARCH/SKIP ◀◀	01100	000011
11	CH5	01001	010100	30	TAPE PLAY ▶	01001	001010
12	CH6	01001	010101	58	EQ ON/FLAT	01001	110000
13	CH7	01001	010110	59	EQ PRESET	01001	110010
14	CH8	01001	010111				

■ BLOCK DIAGRAM

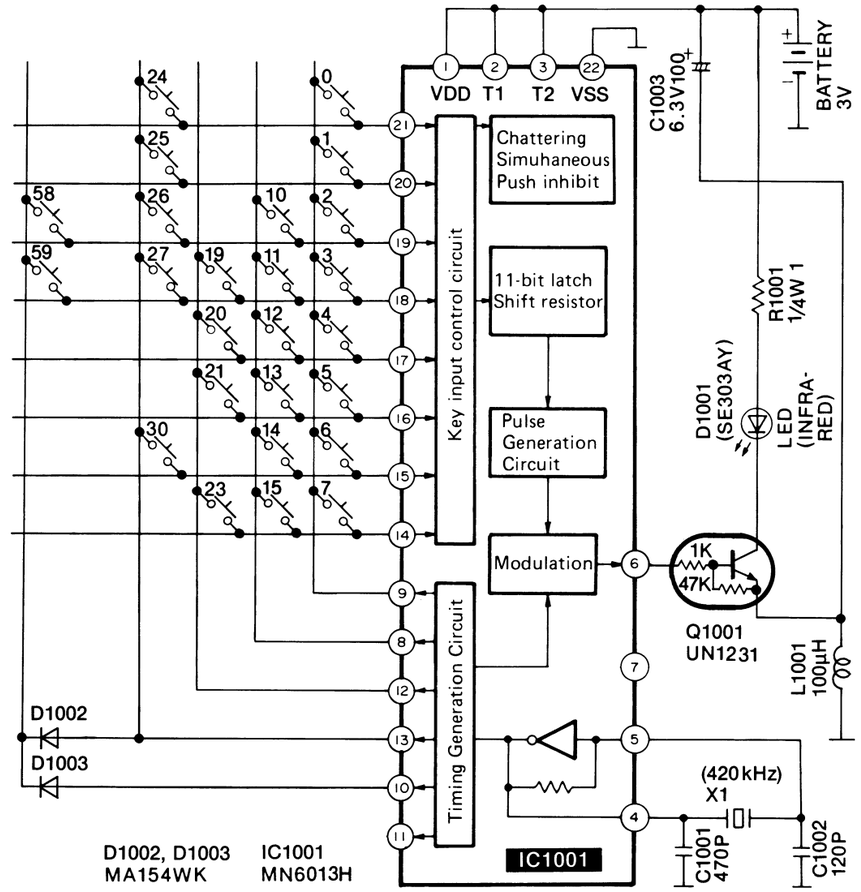


■ SCHEMAT

Key No.	
0	MU
1	VO
2	VO
3	PO
4	CH
5	CH
6	CH
7	CH
10	SE



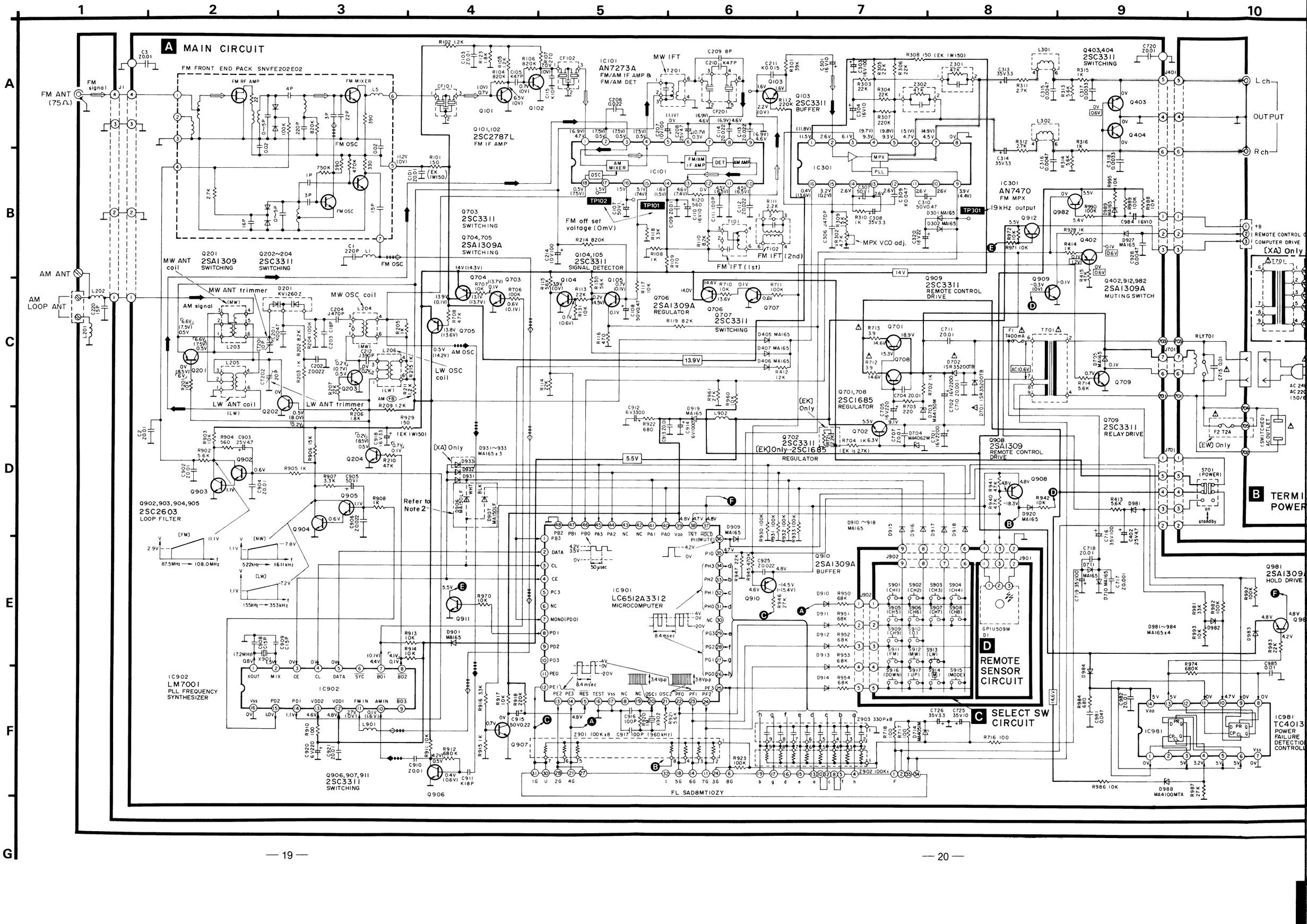
■ SCHEMATIC DIAGRAM OF REMOTE CONTROL TRANSMITTER



D1002, D1003 MA154WK

IC1001 MN6013H

Key No.	FUNCTION	Key No.	FUNCTION	Key No.	FUNCTION
0	MUTING (−20dB)	11	CH5	24	CD PLAY/PAUSE ▶/❚❚
1	VOLUME DOWN ▼	12	CH6	25	CD STOP ■
2	VOLUME UP ▲	13	CH7	26	CD SEARCH/SKIP ▶|
3	POWER ON/OFF	14	CH8	27	CD SEARCH/SKIP |◀
4	CH1	15	CH9	30	TAPE PLAY ▶
5	CH2	19	CH0	58	EQ ON/FLAT
6	CH3	20	TURN TABLE START ▶	59	EQ PRESET
7	CH4	21	TURN TABLE STOP ■		
10	SELECTOR AUX	23	TAPE STOP ■		


A MAIN CIRCUIT
FM ANT (75Ω)
FM signal
AM ANT
AM LOOP ANT
FM FRONT END PACK SNVFE202E02
FM RF AMP
FM MIXER
FM OSC
IC101 AN7273A FM/AM IF AMP & FM/AM DET
MW IFT T201
Q101,102 2SC2787L FM IF AMP
FM off set voltage (0mV)
FM IFT (1st)
FM IFT (2nd)
Q103 2SC3311 BUFFER
IC301 AN7470 FM MPX
19kHz output
MPX VCO adj.
Q403,404 2SC3311 SWITCHING
L ch
OUTPUT
R ch
Q703 2SC3311 SWITCHING
Q704,705 2SA1309A SWITCHING
Q104,105 2SC3311 SIGNAL DETECTOR
Q706 2SA1309A REGULATOR
Q707 2SC3311 SWITCHING
Q909 2SC3311 REMOTE CONTROL DRIVE
Q402,912,982 2SA1309A MUTING SWITCH
Q201 2SA1309 SWITCHING
Q202~204 2SC3311 SWITCHING
MW ANT coil
MW ANT trimmer
MW OSC coil
AM signal
AM OSC
LW OSC coil
LW ANT coil
LW ANT trimmer
Q701,708 2SC1685 REGULATOR
Q709 2SC3311 RELAY DRIVE
Q902~905 2SC2603 LOOP FILTER
Refer to Note 2
Q906,907,911 2SC3311 SWITCHING
IC902 LM7001 PLL FREQUENCY SYNTHESIZER
IC901 LC6512A3312 MICROCOMPUTER
Q910 2SA1309A BUFFER
Q908 2SA1309 REMOTE CONTROL DRIVE
REMOTE SENSOR CIRCUIT
SELECT SW CIRCUIT
Q981 2SA1309A HOLD DRIVE
IC981 TC4013 POWER FAILURE DETECTION CONTROL
FL SAD8MT10ZY
[XA] Only
[EK] Only
RLY701
S701 (POWER)
standby
AC 240V
AC 220V (50/60Hz)
(SWITCHED) AC OUTLET
+B
REMOTE CONTROL
COMPUTER DRIVE
TERMINAL POWER
T701
T400mA
GPIU509M
D1
J901
J902
J401
J701
J703
J704
J705
J706
J707
J708
J709
J710
J711
J712
J713
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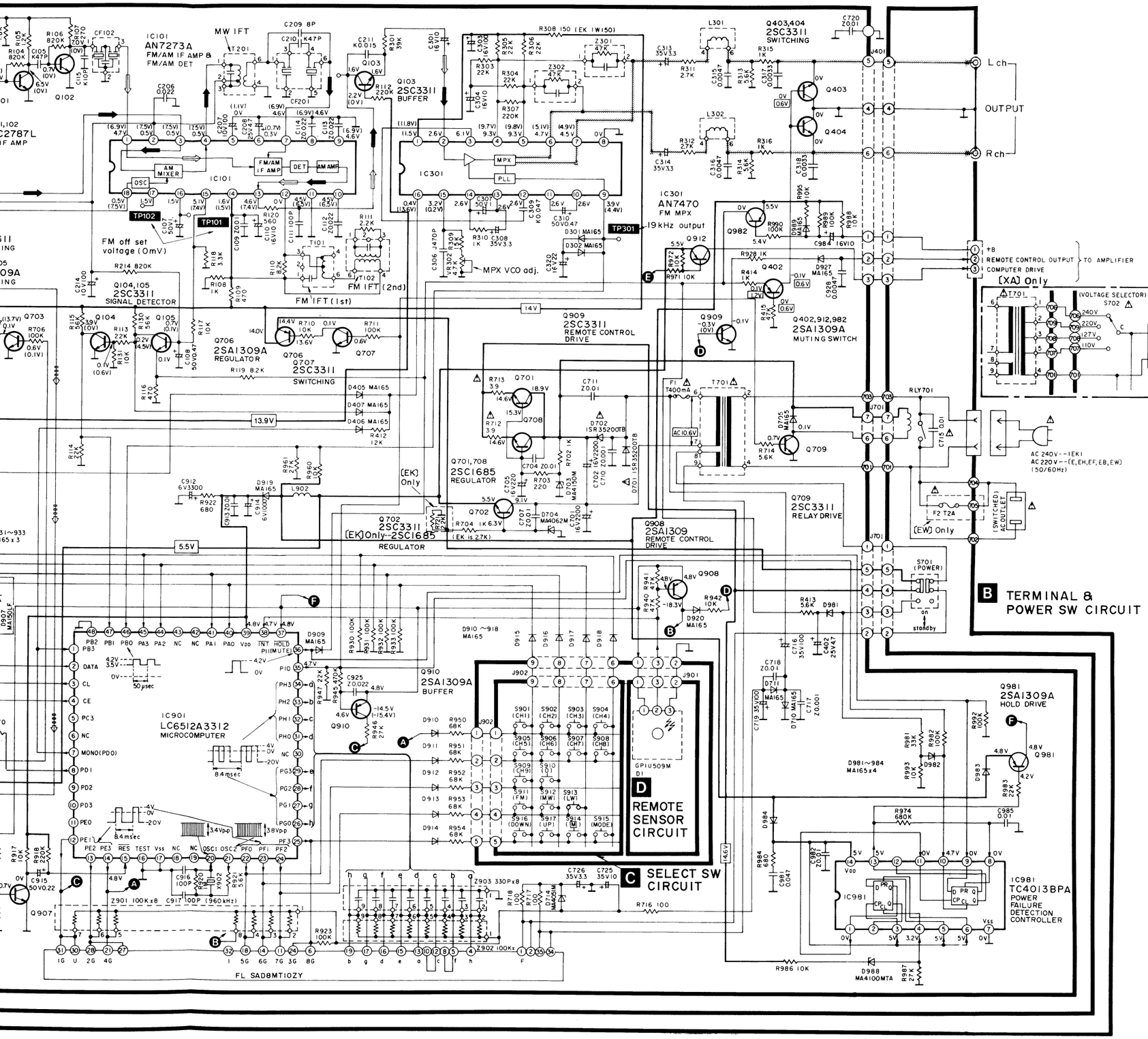
J740
J741
J742



■SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

Note 1:

- **S701** : Power switch in "ON" position.
- **S702** : Voltage selector in "240V" position.
- **S901~S910** : Preset tuning switch.
  (S901: CH1, S902: CH2, S903: CH3, S904: CH4, S905: CH5, S906: CH6, S907: CH7, S908: CH8, S909: CH9, S910: CH0)
- **S911~S913** : Band selectors.
  S911: FM, S912: MW
  S913: LW
- **S914** : Memory switch.
- **S915** : FM mode switch. (stereo ↔ mono)
- **S916, S917** : Tuning switch.
  S916: DOWN, S917: UP

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
  All voltage values shown in circuitry are DC voltage in FM signal (no signal) reception modes.
  * Figures in ( ) stand for DC voltage in AM signal reception mode.
  * Figures in ⌜ ⌟ stand for DC voltage in LW signal reception mode.
  * Figures in ▭ stand for muting mode.

  Positive voltage lines — AF signal lines
  FM OSC — FM signal
  AM OSC — AM signal
- Important safety notice.
  Components identified by ⚠ mark have special characteristics important for safety.
  When replacing any of these components, use only manufacturer's specified parts.

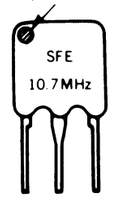
Part No.	Original Part No.	Supply Part No.
D906, 907	MA150	MA162A

Note 2:

- **Use of ceramic filters in pairs**

The ceramic filters (CF101, CF102) for FM-IF circuit are available in three versions. For this circuit, be sure to use the ceramics of the same version in a pair.
At repairing and replacement, pay close attention to the diodes (D906, D907) for use as different diodes must be used depending on each version of the ceramic filters.

Color marking
(Red, Black or White)



VERSION (Color)	D906	D907	CENTER FREQUENCY
Black	×	○	10.65MHz
Red	×	×	10.70MHz
White	○	×	10.75MHz

Note: ○ mark: Diode is used.
× mark: Diode is not used.

* Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.

ORDER NO. AD8811314S8

Service Manual

Supplement

Tuner

ST-X830L

QUARTZ Synthesizer
LW/MW/FM Stereo Tuner

Color

(K)...Black Type

Area

Country Code	Area	Color
(EX)	Continental Europe.	(K)
(EK)	United Kingdom.	
(EB)	Belgium.	
(EH)	Holland.	
(EF)	France.	
(EW)	Switzerland.	
(XA)	Asia, Oceania, Latin America, Middle Near East and Africa.	
(XB)	Saudi Arabia.	
(XL)	Australia.	

Please file and use this supplement manual together with the service manual for Model No. ST-X830L, Order No. HAD8705155C8 and the service manual for Model No. ST-X830L, Order No. HAD8706166C3.

Note:

- This supplement has been issued to correct "Replacement Parts List" (On page 12) of the service manuals.

CORRECTION

■ REPLACEMENT PARTS LIST

Ref. No.	Change of Part No. INCORRECT → CORRECT		Part Name & Description	Remarks
ACCESSORIES				
A10 (EX,EB,EH,EW)	————	**SQF12993–2**	INSTRUCTION MANUAL	Addition
A10 (EF, XA)	————	**SQF12994**	INSTRUCTION MANUAL	Addition
A10 (EK)	————	**SQF12996–4**	INSTRUCTION MANUAL	Addition
A10 (XL)	————	**SQF12999**	INSTRUCTION MANUAL	Addition
A10 (XB)	————	**SQF13002**	INSTRUCTION MANUAL	Addition

Technics

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

Printed in Japan
K881106880SN

ORDER NO. HAD8705155C8-A

Tuner

FRANÇAIS

Ceci est à utiliser conjointement avec manuel d'entretien du modèle No. ST-X830L.

■ MEAURAGES ET REGLAGES

LW/MW/M.F.

Positionnements des commandes et équipement utilisé

- Générateur de signaux A.M., M.F. (A.M. et FM-SG)
- Modulateur stéréophonique
- Analyseur de distorsion
- Oscilloscope
- Compteur de fréquence
- Bobine d'amortissement d'arrêt (100μH)
- Résistance (100kΩ)
- Condensateur céramique (200pF)
- Voltmètre électronique à C.A. et C.C. (EVM).

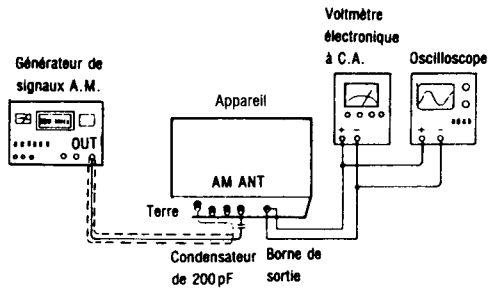
Nota: Pour **T201 (MW) F.I., L204 (bobine oscil. de MW)** et **L205 (bobine ANT LW)**, des éléments réglés sont fournis. Aussi, ne pas tourner les noyaux de ces pièces.

REGLAGE DE O.M.-H.F.

1. Le raccordement de l'équipement d'essai est montré sur l'illustration.
2. Régler l'appareil sur le mode **"MW"**.
3. Régler le cadran radio et le générateur de signaux sur **612kHz**.
4. Régler **L203** pour une sortie maximale.
5. Régler le cadran radio et le générateur de signaux sur **1503kHz**.
6. Régler **CT201** pour une sortie maximale.
7. Répéter les étapes 3 ~ 6.

Nota: Le niveau d'entrée d'antenne doit être aussi bas que possible étant libéré de la commande automatique de gain.

CONDITION DU GENERATEUR DE SIGNAUX MW
Modulation 30%
Modulationsfrequenz 400Hz

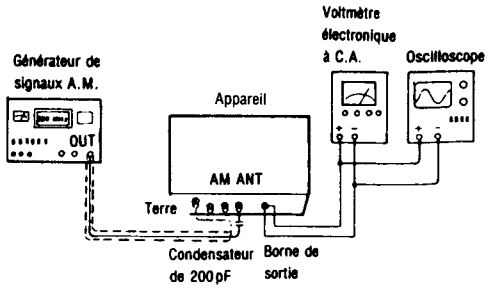


REGLAGE DE RE-LW

1. Le raccordement de l'équipement d'essai est montré sur l illustration.
2. Régler l'appareil sur le mode **"LW"**.
3. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **155kHz.**
4. Régler **L206** pour une sortie maximale.
5. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **353kHz.**
6. Régler **CT202** pour une sortie maximale.
7. Répéter les étapes 3 ~ 6.

Nota: Le niveau d entrée d'antenne doit étre aussi bas que possible étant libéré de la commande automatique de gain.

CONDITION DU GENERATEUR DE SIGNAUX MW
Modulation 30%
Modulationsfrequenz 400Hz

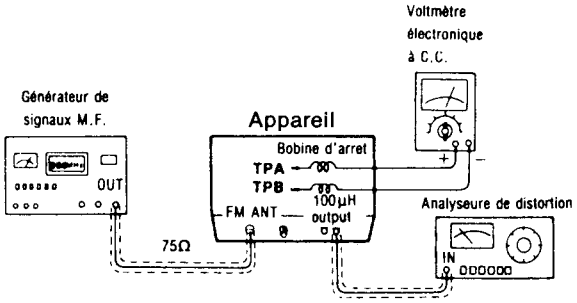


REGLAGE DE DISTORSION MONOPHONIQUE M.F.

1.Le raccordement de l'équipement d'essai est montré sur l'illustration.
2.Régler l'appareil sur le mode **"FM"**.
3.Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **100.10MHz**.
4.Régler le noyau de **T101** de telle sorte que la tension mesurée sur le mode de signaux soit de **0mV(0±50mV)** dans une plage de 1V.
5.Ajuster **T102** de telle que le facteur de sistorsion du canal de gauche soit minimisé.
6.Répéter les étapes 4 et 5 quelques fois.
7.S'assurer que les facteurs de distorsion du canal de gauche et du canal de droite soient sensiblement les mêmes et au minimum.

Nota: Le tournevis de réglage utilisé devra ètre fait en résines.

CONDITION DU GENERATEUR DE SIGNAUX M.F.
Modulation.....100%
Fréquenz de modulation 400Hz
Niveau de sortie 66dB



TPA=TP101, TPB=TP102

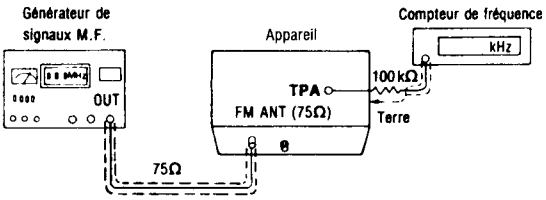
REGLAGE MULTIPLEX DE L'OSCILLATEUR COMMANDE PAR VARIATION DE TENSION

1.Le raccordement de l'équipement d'essai est montré sur la figure.
2.Régler l'appareil sur la position **"on/auto"**
3.Régler le cadran radio et le générateur de signaux sur **100.10MHz**.
4.Ajuster **VR302** pour **19kHz ± 30Hz** sur le compteur de lecture de fréquences.

● EN UTILISANT UN SYSTEME ALTERNATIF

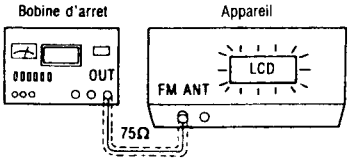
1.Applique un signal stéréo à partir du générateur ou recevoir une émission stéréo.
2.Ajuster **VR302** jusqu' à ce que l'indicateur stéréo s éclaire. Coller le bras de **VR302** comme il montré sur la figure.

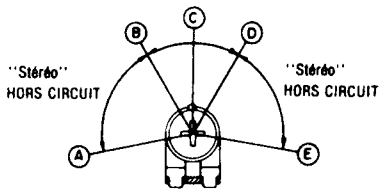
CONDITION DU GENERATEUR DE SIGNAUX M.F.
Modulation.....0%
Fréquenz de modulation 0
Niveau de sortie 66dB



TPA=TP301
Compteur de fréquence:19.000 kHz

CONDITION DU GENERATEUR DE SIGNAUX M.F.
Modulation.....100%
Fréquenz de modulation 400Hz
Niveau de sortie 66dB





VRA

Ⓐ−Ⓑ,
Ⓓ−Ⓔ..... Position de HORS CIRCUIT "Stereo".
Ⓑ−Ⓓ..... Position de MISE EN CIRCUIT "Stereo". (Eclairage de l'indicateur)
Ⓒ..... Point de réglage du circuit pilote.

VRA=VR302

ESPAÑOL

Sirvase utilizarse junto con manual de servicio para el model No. ST-X830L.

■ MEDICIONES Y AJUSTES

LW/MW/FM

Posiciones de control y equipo usado.

- Generador de señales de AM y FM (AM y FM-SG)
- Voltímetro electrónico de CA y CC(EVM)
- Analizador de distorsiones
- Osciloscopio
- Frecuencímetro
- Frecuencímetro
- Bobina de choque(100μH)
- Resistor(100kΩ)
- Condensador cerámico(200pF)

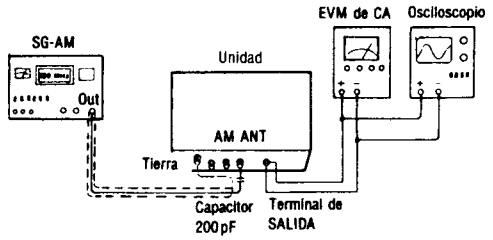
Nota: Para **T201(MW-IFT)**, **L204(bobina de OSC.MW)** y **L205 (bobina antena LO)** son suministradas piezas ajustadas. Por lo tanto, no gire los núcleos de estas piezas.

AJUSTE DE MW-RF

1.La conexión del equipo de pruebas se muestra en la figura.
2.Poner la unidad en modalidad de **"MW"**.
3.Poner la presentación de la radio y el generador de señales en **612kHz**.
4.Ajustar **L203** para salida máxima.
5.Poner la presentación de la radio y el generador de señales en **1503kHz**.
6.Ajustar **CT201** para salida máxima.
7.Repita los pasos 3. al 6.

Nota:
El nivel de entrada de antena ha de ser lo más bajo posible estando libre de AGC (control automático de ganancia).

CONDICION DE GENERADOR DE SEÑALES DE MW
Modulación 30%
Frecuencia de modulación 400Hz

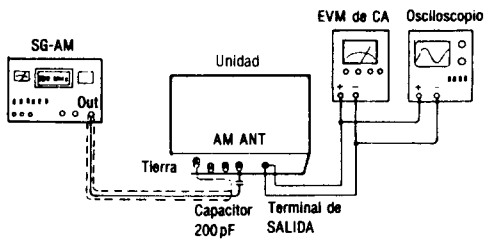


AJUSTE DE LO-RF

1.La conexión del equipo de pruebas se muestra en la figura.
2.Poner la unidad en modalidad de **"LW"**.
3.Poner la puesta de la presentación de radiofrecuenciay generador de señales a **155kHz**.
4.Ajustar **L206** para salida máxima.
5.Poner la puesta de la presentación de radiofrecuenciay generador de señales a **353kHz**.
6.Ajustar **CT202** para salida máxima.
7.Repitir los pasos 3. al 6.

Nota:
El nivel de entrada de antena ha de ser lo más bajo posible estando libre de AGC (control automático de ganancia).

CONDICION DE GENERADOR DE SEÑALES DE MW
Modulación 30%
Frecuencia de modulación 400Hz

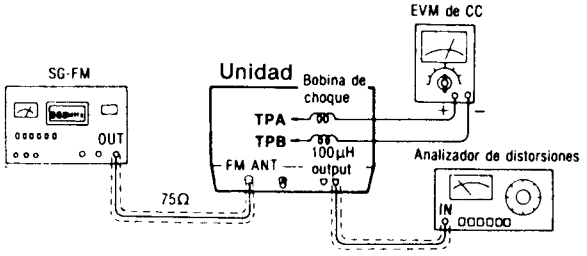


AJUSTE DE DISTORSION MONO FM

1.La conexión del equipo de pruebas se muestra en la figura.
2.Poner la unidad en modalidad de **"FM"**.
3.Poner la puesta de la presentación de radiofrecuencia y generador de señales a **100,10MHz.**
4.Ajustar el núcleo de **T101** de manera que el voltaje medido en modalidad de señal sea 0mV (0±50mV).
5.Ajustar **T102** de manera que el factor de distorsión de CH-I se minimice.
6.Repetir los pasos 4 y 5 algunas veces.
7.Asegurarse de que los factores de distorsión de CH-I y CH-D sean casi los mismos y los mínimos.

Nota:
El destornillador de ajuste usado debe estar hecho de resina.

CONDICION DE GENERADOR DE SEÑALES DE FM
Modulación 100%
Frecuencia de modulación 400Hz
Nivel de salida 66dB



TPA=TP101, TPB=TP102

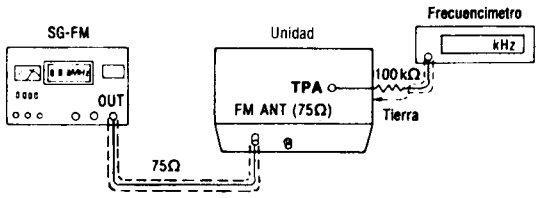
AJUSTE DE MPX VCO(OSCILADOR CONTROLADO POR VOLTAJE MPX)

1.La conexión del equipo de pruebas se muestra en la figura.
2.Poner la unidad en la posición de **"on/auto"**.
3.Poner la presentación de la radio y la puesta del generador de señales en **100.10MHz**.
4.Ajustar **VR302** para **19kHz±30Hz** en lectura de frecuencímetro.

* USANDO SISTEMA ALTERNATIVO

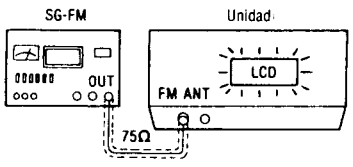
1.Aplicar señal estereofónica del generador o recibir la emisión estereofónica.
2.Ajustar **VR302** hasta que la presentacón de estéro se encienda. Fijar el brazo de **VR302** como se muestra en la figura.

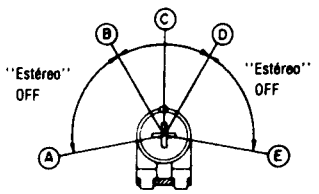
CONDICION DE GENERADOR DE SEÑALES DE FM
Modulación 0%
Frecuencia de modulación 0
Nivel de salida 66dB



TPA=TP301
Frecuencimetro:19.000 kHz

CONDICION DE GENERADOR DE SEÑALES DE FM
Modulación 100%
Frecuencia de modulación 400Hz
Nivel de salida 66dB





VRA

Ⓐ−Ⓑ,
Ⓓ−Ⓔ..... **Pósición de "estéreo" OFF.**
Ⓑ−Ⓓ..... **Pósición de "estéreo" ON. (Indicador encendido)**
Ⓒ..... **Punto de ajuste de circuito piloto.**

VRA=VR302

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